

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: P928676

Luminaire Tested: DFN2DIP-HX4F0-090D050US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928676
REPORT IS A COMBINATION OF REPORTS P900847 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D050US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

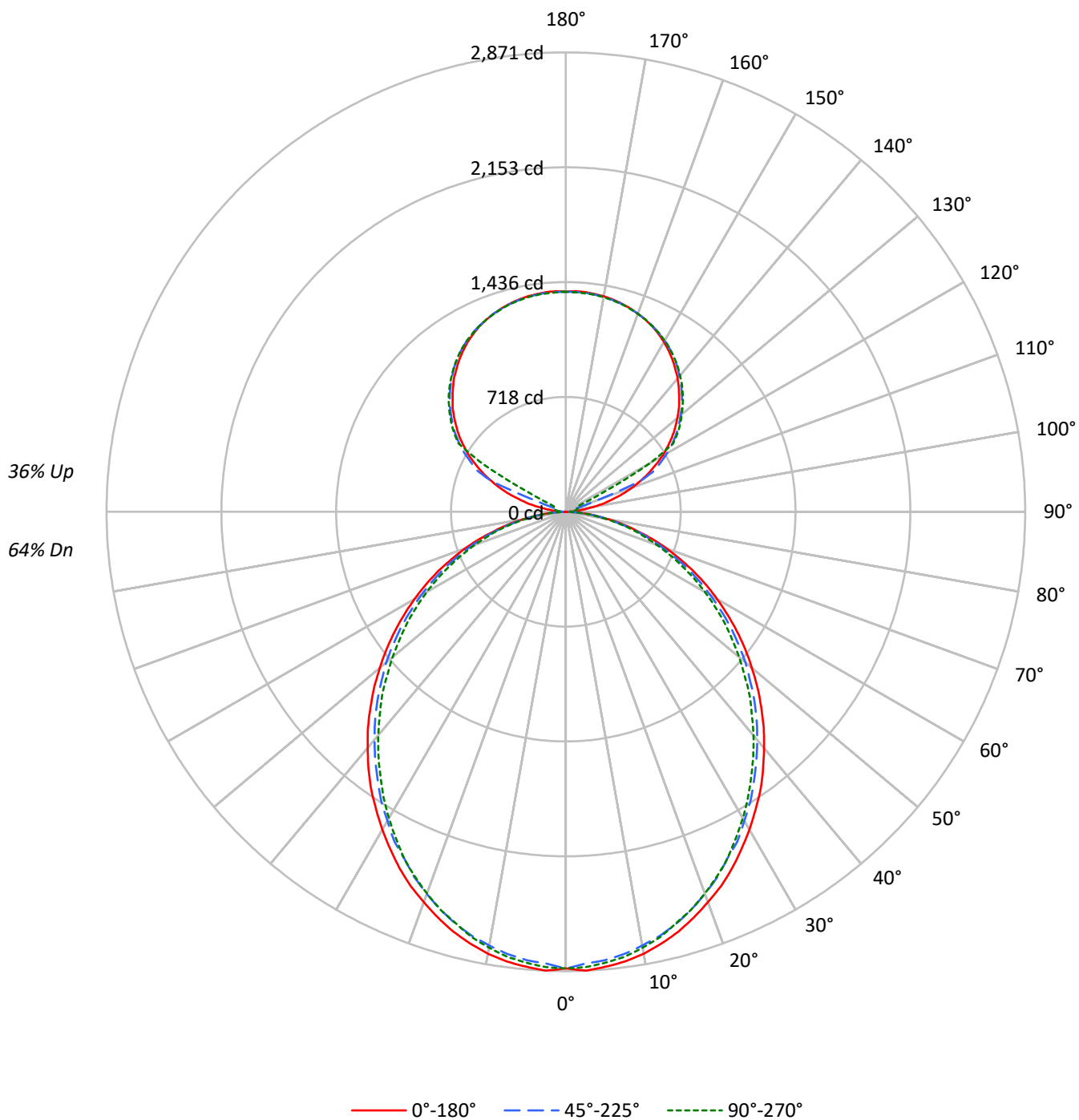
Lumens per Lamp: N/A
Luminaire Lumens: 11295.9 lumens
Efficiency: N/A
Efficacy: 89.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 126.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

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	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2122	2122	2122
5°	2126	2093	2107
10°	2109	2065	2078
15°	2078	2031	2034
20°	2036	1984	1988
25°	1995	1928	1936
30°	1943	1875	1869
35°	1893	1814	1798
40°	1833	1751	1731
45°	1772	1689	1662
50°	1706	1623	1582
55°	1637	1547	1508
60°	1558	1457	1424
65°	1473	1364	1325
70°	1364	1250	1218
75°	1214	1114	1120
80°	1033	941	932
85°	749	641	620

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1772 cd/sqm

TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.6	2.4
10°-20°	755.8	6.7
20°-30°	1110.7	9.8
30°-40°	1290.1	11.4
40°-50°	1288.5	11.4
50°-60°	1123.5	9.9
60°-70°	830.5	7.4
70°-80°	469.9	4.2
80°-90°	126.4	1.1
90°-100°	45.4	0.4
100°-110°	169.1	1.5
110°-120°	448.4	4.0
120°-130°	743.6	6.6
130°-140°	789.9	7.0
140°-150°	734.1	6.5
150°-160°	590.2	5.2
160°-170°	380.3	3.4
170°-180°	130.9	1.2
0°-30°	2135.2	18.9
0°-40°	3425.3	30.3
0°-60°	5837.3	51.7
0°-90°	7264.1	64.3
90°-120°	662.8	5.9
90°-150°	2930.4	25.9
90°-180°	4032.0	35.7
0°-180°	11295.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2854	2854	2854	2854	2854	
5°	2854	2843	2813	2835	2830	271
15°	2717	2701	2665	2676	2662	765
25°	2459	2437	2391	2396	2391	1131
35°	2122	2094	2050	2034	2020	1325
45°	1726	1707	1666	1636	1625	1332
55°	1306	1290	1257	1224	1210	1168
65°	881	864	837	812	799	871
75°	461	456	442	425	431	492
85°	112	110	107	99	96	125
90°	1	12	20	25	27	10
95°	65	32	39	44	43	77
105°	302	332	61	72	76	323
115°	572	589	614	153	82	563
125°	809	822	841	848	851	721
135°	1001	1017	1026	1036	1034	773
145°	1161	1160	1177	1184	1179	726
155°	1279	1270	1282	1288	1280	589
165°	1347	1342	1344	1351	1344	381
175°	1378	1371	1373	1380	1370	131
180°	1375	1375	1375	1375	1375	

TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2854.0	2854.0	2854.0	2854.0	2854.0
2.5°	2870.7	2857.0	2826.7	2854.0	2848.8
5°	2854.0	2843.3	2813.1	2834.9	2829.6
7.5°	2834.9	2818.6	2788.3	2810.4	2804.9
10°	2804.9	2785.7	2752.7	2774.6	2766.4
12.5°	2763.5	2747.2	2714.4	2728.0	2722.5
15°	2717.0	2700.7	2664.8	2675.9	2662.2
17.5°	2659.3	2643.0	2607.2	2620.9	2607.2
20°	2596.1	2579.8	2541.3	2549.5	2538.7
22.5°	2533.2	2508.5	2472.6	2472.6	2467.1
25°	2458.9	2437.1	2390.6	2395.8	2390.6
27.5°	2376.5	2357.3	2321.9	2313.7	2300.0
30°	2294.5	2272.3	2231.2	2223.1	2212.1
32.5°	2206.5	2190.2	2146.2	2129.7	2118.6
35°	2121.5	2094.1	2050.1	2033.6	2019.9
37.5°	2025.4	2000.7	1956.7	1937.5	1923.8
40°	1926.7	1904.6	1860.6	1836.1	1825.1
42.5°	1830.6	1808.5	1764.8	1737.2	1720.9
45°	1726.3	1707.2	1665.8	1635.8	1624.8
47.5°	1624.8	1605.6	1561.5	1531.3	1515.0
50°	1517.6	1503.9	1465.5	1427.1	1413.4
52.5°	1413.4	1394.1	1358.6	1328.4	1309.1
55°	1306.5	1289.9	1257.0	1224.1	1210.4
57.5°	1199.4	1185.7	1149.9	1117.0	1105.9
60°	1092.2	1081.4	1043.0	1012.7	1004.6
62.5°	987.9	968.7	941.3	914.0	902.9
65°	881.1	864.5	837.1	812.4	798.7
67.5°	771.3	757.4	732.8	713.7	702.6
70°	669.7	658.6	633.9	614.7	603.9
72.5°	565.4	554.4	540.7	521.5	513.4
75°	461.0	455.7	441.7	425.4	431.0
77.5°	367.7	356.7	351.2	343.0	334.9
80°	274.6	271.6	266.1	257.9	252.5
82.5°	186.6	186.6	184.0	172.9	172.9
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	1.0	11.9	19.9	24.9	26.8
92.5°	24.9	20.9	23.9	25.9	26.8
95°	64.6	31.8	38.8	43.8	42.8
97.5°	116.4	34.9	50.7	53.8	54.7
100°	176.2	39.9	56.7	64.6	66.7
102.5°	241.8	239.9	58.8	69.6	72.7
105°	302.5	332.4	60.7	71.6	75.6
107.5°	373.2	398.0	62.8	73.6	77.7
110°	440.9	461.7	174.2	74.7	78.6

TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	504.6	522.4	505.5	76.6	79.6
115°	572.2	589.1	614.0	153.3	81.7
117.5°	630.9	650.8	667.8	525.3	264.7
120°	696.6	711.5	729.4	741.4	607.0
122.5°	752.2	768.2	788.2	794.1	795.2
125°	809.0	822.0	840.9	847.8	850.9
127.5°	860.7	874.7	889.7	899.6	900.6
130°	909.5	925.5	936.4	947.4	946.5
132.5°	959.3	972.3	983.1	992.2	991.2
135°	1001.1	1017.1	1025.9	1036.0	1034.0
137.5°	1044.8	1056.8	1066.8	1076.8	1073.8
140°	1087.6	1095.7	1106.5	1115.5	1110.6
142.5°	1123.6	1130.6	1143.4	1151.4	1146.4
145°	1161.4	1160.3	1177.2	1184.2	1179.2
147.5°	1194.1	1191.1	1208.1	1213.0	1209.1
150°	1226.0	1219.1	1235.0	1240.9	1235.9
152.5°	1252.8	1244.9	1259.8	1265.9	1258.8
155°	1278.7	1269.9	1281.8	1287.7	1279.8
157.5°	1299.6	1291.7	1300.7	1307.7	1299.6
160°	1317.6	1311.6	1317.6	1323.5	1316.6
162.5°	1333.4	1327.6	1332.4	1339.5	1330.5
165°	1347.4	1341.5	1344.4	1351.4	1344.4
167.5°	1358.4	1352.3	1355.4	1362.4	1353.4
170°	1367.3	1361.3	1363.3	1370.3	1361.3
172.5°	1373.3	1367.3	1369.4	1376.3	1367.3
175°	1378.2	1371.2	1373.3	1380.2	1370.3
177.5°	1380.2	1373.3	1374.3	1381.3	1372.3
180°	1375.2	1375.2	1375.2	1375.2	1375.2

TEST NUMBER: P928676

CATALOG NUMBER: DFN2DIP-HX4F0-090D050US930-FLLONL

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	11.11	12.12	11.94	12.97	14.02	10.68	11.69	11.50	12.53	13.58
	3H	12.78	13.69	13.62	14.54	15.62	12.31	13.21	13.15	14.07	15.15
	4H	13.38	14.23	14.23	15.10	16.18	12.91	13.76	13.76	14.62	15.71
	6H	13.79	14.57	14.65	15.44	16.55	13.31	14.10	14.18	14.97	16.07
	8H	13.90	14.65	14.77	15.53	16.64	13.42	14.17	14.29	15.06	16.16
	12H	13.95	14.66	14.83	15.55	16.68	13.47	14.18	14.35	15.07	16.19
4H	2H	11.59	12.45	12.45	13.31	14.40	11.25	12.10	12.10	12.96	14.05
	3H	13.47	14.18	14.34	15.08	16.18	13.08	13.79	13.95	14.69	15.79
	4H	14.19	14.84	15.07	15.73	16.87	13.79	14.44	14.67	15.33	16.46
	6H	14.72	15.28	15.61	16.19	17.33	14.31	14.87	15.20	15.79	16.92
	8H	14.87	15.40	15.77	16.31	17.45	14.46	14.98	15.36	15.89	17.04
	12H	14.95	15.42	15.87	16.35	17.51	14.53	15.00	15.45	15.93	17.08
8H	4H	14.40	14.93	15.30	15.84	16.98	14.04	14.57	14.94	15.48	16.62
	6H	15.04	15.48	15.97	16.43	17.57	14.68	15.11	15.60	16.06	17.21
	8H	15.26	15.65	16.20	16.59	17.76	14.89	15.28	15.83	16.22	17.39
	12H	15.40	15.74	16.34	16.68	17.89	15.02	15.36	15.96	16.29	17.51
12H	4H	14.39	14.87	15.31	15.80	16.95	14.04	14.52	14.96	15.44	16.60
	6H	15.07	15.46	16.01	16.40	17.57	14.72	15.11	15.66	16.05	17.21
	8H	15.32	15.66	16.26	16.60	17.81	14.96	15.30	15.90	16.24	17.45