

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: P916374

Luminaire Tested: DFN2DIP-HX4F0-060D100US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916374
REPORT IS A COMBINATION OF REPORTS P899411 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

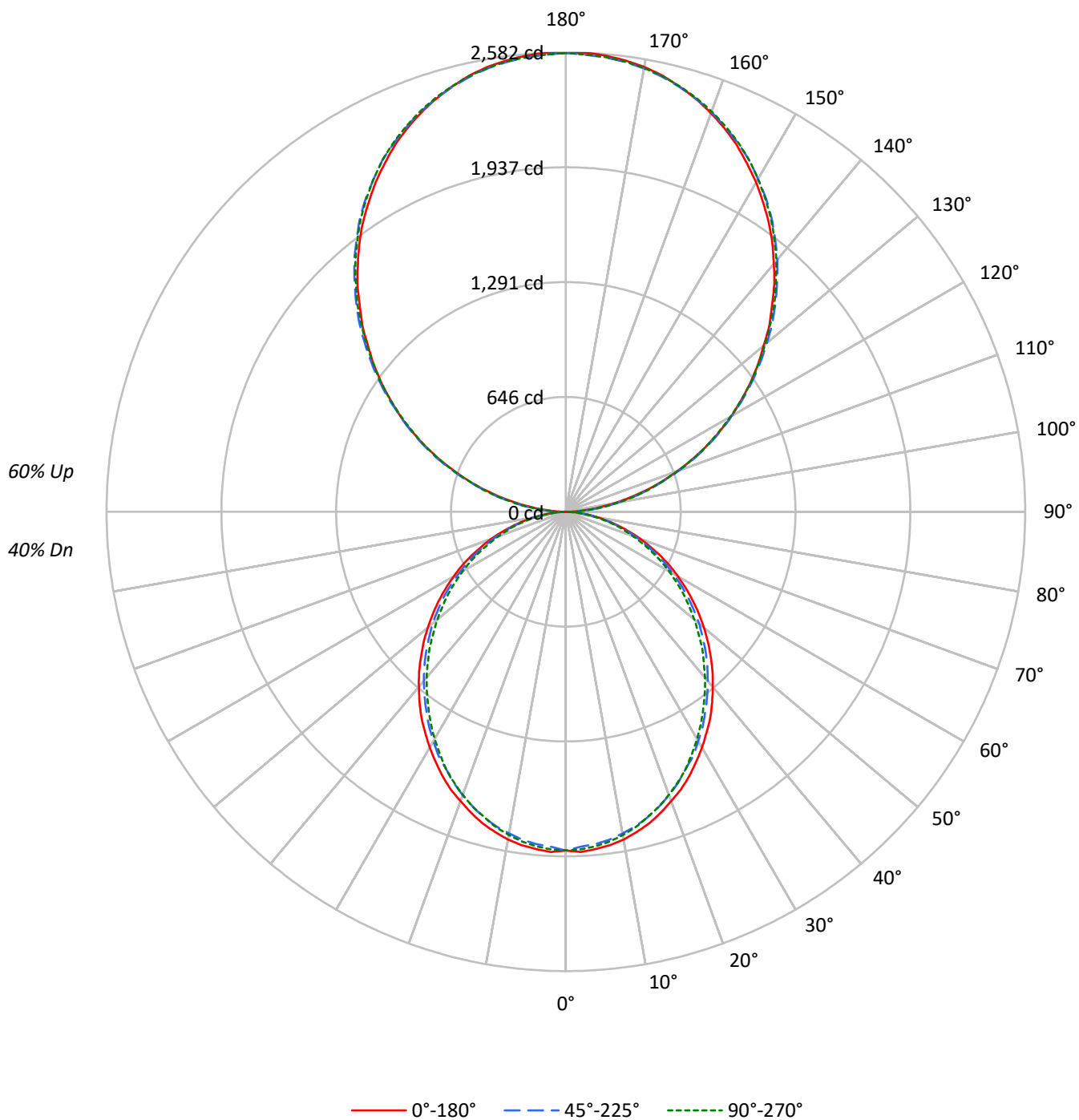
Lumens per Lamp: N/A
Luminaire Lumens: 12058.3 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	42	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	29	27	25
5	67	55	47	41	60	51	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	27	24	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	28	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	16	14
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1415	1415	1415
5°	1418	1396	1405
10°	1406	1377	1386
15°	1386	1355	1357
20°	1358	1323	1326
25°	1330	1286	1291
30°	1296	1251	1246
35°	1263	1210	1199
40°	1222	1168	1154
45°	1182	1126	1108
50°	1138	1083	1055
55°	1091	1032	1006
60°	1039	972	950
65°	982	910	884
70°	910	834	813
75°	809	743	747
80°	689	627	622
85°	499	427	413

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1946 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	1.5
10°-20°	504.1	4.2
20°-30°	740.8	6.1
30°-40°	860.4	7.1
40°-50°	859.3	7.1
50°-60°	749.3	6.2
60°-70°	553.9	4.6
70°-80°	313.4	2.6
80°-90°	90.0	0.7
90°-100°	159.6	1.3
100°-110°	507.0	4.2
110°-120°	867.6	7.2
120°-130°	1141.0	9.5
130°-140°	1280.7	10.6
140°-150°	1255.9	10.4
150°-160°	1053.5	8.7
160°-170°	698.7	5.8
170°-180°	244.2	2.0
0°-30°	1424.0	11.8
0°-40°	2284.3	18.9
0°-60°	3892.9	32.3
0°-90°	4850.2	40.2
90°-120°	1534.1	12.7
90°-150°	5211.7	43.2
90°-180°	7208.0	59.8
0°-180°	12058.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	2	28	76	72	74	12
95°	114	135	139	139	135	126
105°	468	474	479	483	483	494
115°	871	883	879	877	871	861
125°	1266	1286	1280	1272	1270	1132
135°	1638	1662	1667	1664	1658	1266
145°	1988	2004	2016	2019	2010	1242
155°	2274	2280	2287	2298	2291	1047
165°	2474	2471	2471	2487	2476	698
175°	2574	2568	2563	2578	2565	245
180°	2578	2578	2578	2578	2578	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	2.4	28.0	76.1	71.5	73.9
92.5°	48.2	65.3	67.7	70.0	70.0
95°	113.5	135.3	139.2	139.2	135.3
97.5°	188.9	209.1	217.7	217.7	217.7
100°	276.0	293.8	300.0	300.0	297.7
102.5°	367.7	380.9	389.5	391.8	389.5
105°	468.0	474.2	478.8	482.7	482.7
107.5°	567.4	576.8	576.8	578.4	567.4
110°	663.9	676.3	676.3	676.3	670.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	768.0	781.2	778.9	772.7	768.0
115°	870.7	883.0	879.2	876.9	870.7
117.5°	972.5	989.6	978.7	972.5	966.2
120°	1075.1	1092.2	1075.1	1075.1	1068.1
122.5°	1168.3	1190.1	1179.2	1173.1	1168.3
125°	1266.3	1285.7	1279.5	1272.5	1270.2
127.5°	1362.0	1386.0	1377.4	1368.2	1362.0
130°	1451.3	1479.3	1475.4	1470.7	1462.2
132.5°	1551.6	1573.4	1574.9	1564.1	1557.8
135°	1637.9	1662.0	1666.6	1664.3	1658.1
137.5°	1734.3	1753.7	1757.6	1756.1	1746.7
140°	1819.0	1838.4	1849.3	1849.3	1840.8
142.5°	1906.1	1925.5	1931.7	1934.1	1925.5
145°	1988.4	2004.0	2016.5	2018.8	2010.2
147.5°	2062.3	2081.8	2091.1	2095.0	2086.4
150°	2138.5	2151.7	2160.3	2167.2	2160.3
152.5°	2206.1	2219.3	2230.2	2238.8	2230.2
155°	2273.8	2280.0	2287.0	2297.8	2290.8
157.5°	2332.1	2336.7	2340.6	2356.1	2345.3
160°	2384.2	2388.8	2391.1	2404.3	2395.0
162.5°	2432.4	2432.4	2434.6	2449.4	2438.6
165°	2473.5	2471.2	2471.2	2486.7	2475.9
167.5°	2510.9	2503.9	2503.9	2519.4	2508.5
170°	2538.8	2532.6	2530.3	2545.9	2532.6
172.5°	2558.2	2552.0	2549.7	2565.3	2552.0
175°	2573.8	2567.6	2563.0	2578.5	2565.3
177.5°	2582.4	2576.2	2571.5	2584.7	2571.5
180°	2578.5	2578.5	2578.5	2578.5	2578.5

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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	7.50	8.28	8.54	9.32	10.73	7.07	7.85	8.11	8.89	10.30
	3H	9.16	9.85	10.20	10.91	12.33	8.68	9.38	9.73	10.43	11.86
	4H	9.74	10.40	10.80	11.46	12.89	9.27	9.93	10.32	10.98	12.41
	6H	10.14	10.75	11.20	11.80	13.25	9.66	10.27	10.73	11.33	12.77
	8H	10.24	10.82	11.31	11.89	13.33	9.76	10.34	10.84	11.42	12.86
	12H	10.29	10.84	11.36	11.90	13.37	9.80	10.36	10.88	11.42	12.89
4H	2H	7.95	8.62	9.02	9.67	11.10	7.61	8.27	8.67	9.32	10.76
	3H	9.81	10.37	10.89	11.45	12.89	9.42	9.97	10.49	11.05	12.50
	4H	10.52	11.03	11.60	12.10	13.57	10.12	10.63	11.20	11.70	13.16
	6H	11.04	11.47	12.12	12.57	14.03	10.63	11.06	11.71	12.16	13.62
	8H	11.18	11.59	12.27	12.68	14.15	10.77	11.18	11.86	12.27	13.74
	12H	11.25	11.62	12.36	12.72	14.20	10.83	11.20	11.94	12.30	13.78
8H	4H	10.71	11.12	11.80	12.21	13.68	10.35	10.76	11.44	11.85	13.32
	6H	11.34	11.68	12.45	12.81	14.28	10.98	11.32	12.09	12.45	13.92
	8H	11.56	11.86	12.68	12.97	14.46	11.20	11.49	12.31	12.60	14.09
	12H	11.69	11.95	12.81	13.06	14.59	11.31	11.57	12.43	12.68	14.21
12H	4H	10.70	11.07	11.80	12.17	13.65	10.34	10.71	11.45	11.81	13.29
	6H	11.37	11.67	12.49	12.78	14.27	11.02	11.32	12.14	12.43	13.92
	8H	11.61	11.87	12.73	12.98	14.51	11.26	11.51	12.38	12.62	14.15

END OF REPORT