

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: P919102

Luminaire Tested: DFN2DIP-HX4F0-060D100US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919102
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-HX4F0-060D100US935-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

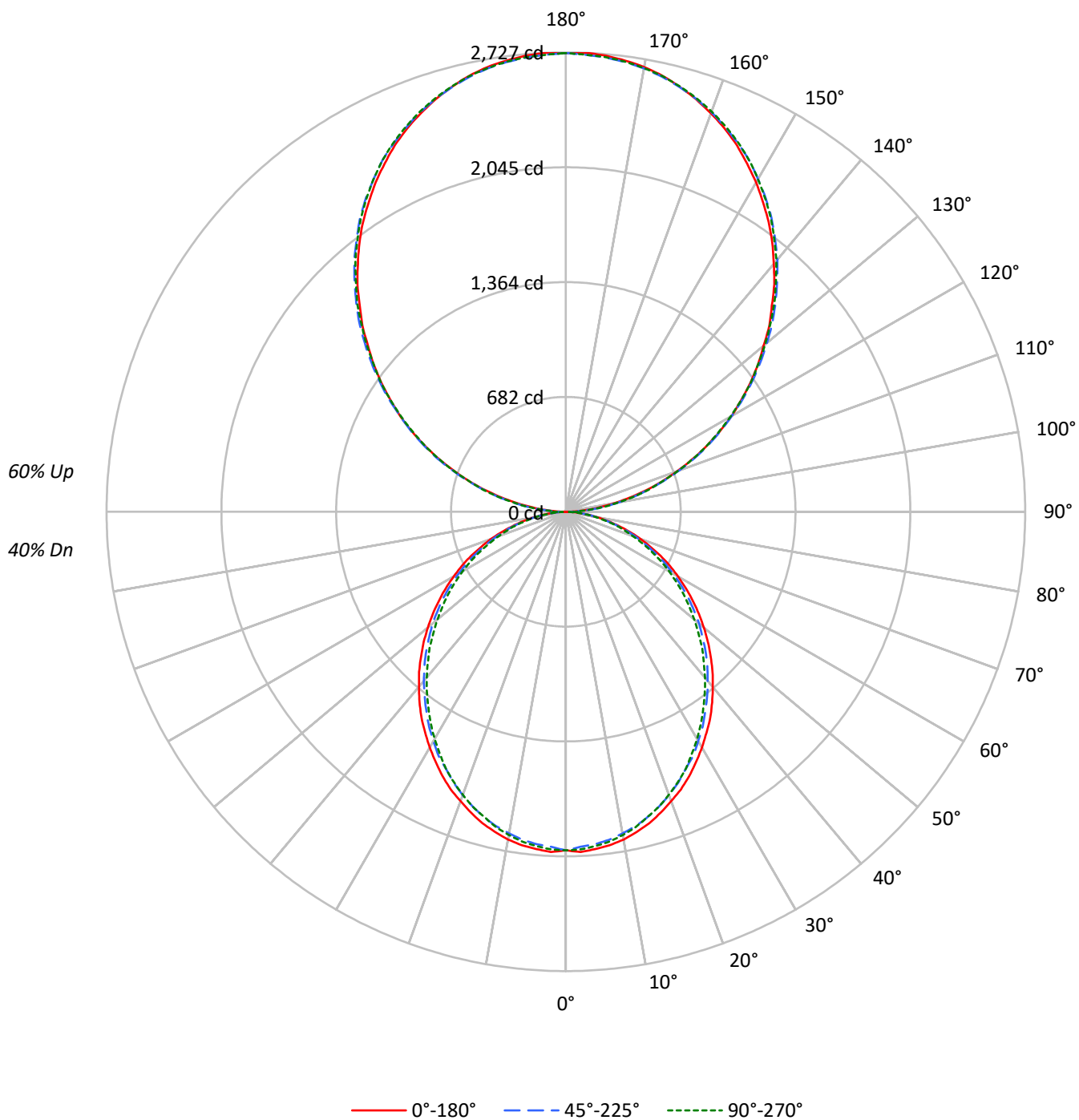
Lumens per Lamp: N/A
Luminaire Lumens: 12734.2 lumens
Efficiency: N/A
Efficacy: 113.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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°	1495	1495	1495
5°	1497	1474	1484
10°	1485	1454	1464
15°	1463	1430	1433
20°	1434	1397	1400
25°	1405	1358	1363
30°	1368	1321	1316
35°	1333	1277	1266
40°	1291	1233	1219
45°	1248	1189	1170
50°	1201	1143	1114
55°	1153	1090	1062
60°	1097	1026	1003
65°	1037	961	933
70°	961	880	858
75°	855	785	789
80°	727	662	656
85°	527	451	437

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2054 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.5
10°-20°	532.3	4.2
20°-30°	782.3	6.1
30°-40°	908.6	7.1
40°-50°	907.5	7.1
50°-60°	791.3	6.2
60°-70°	584.9	4.6
70°-80°	330.9	2.6
80°-90°	95.1	0.7
90°-100°	168.5	1.3
100°-110°	535.4	4.2
110°-120°	916.2	7.2
120°-130°	1204.9	9.5
130°-140°	1352.5	10.6
140°-150°	1326.3	10.4
150°-160°	1112.6	8.7
160°-170°	737.8	5.8
170°-180°	257.9	2.0
0°-30°	1503.8	11.8
0°-40°	2412.4	18.9
0°-60°	4111.1	32.3
0°-90°	5122.1	40.2
90°-120°	1620.1	12.7
90°-150°	5503.8	43.2
90°-180°	7612.0	59.8
0°-180°	12734.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	2	30	80	76	78	12
95°	120	143	147	147	143	133
105°	494	501	506	510	510	522
115°	920	932	928	926	920	909
125°	1337	1358	1351	1344	1341	1195
135°	1730	1755	1760	1758	1751	1337
145°	2100	2116	2130	2132	2123	1312
155°	2401	2408	2415	2427	2419	1105
165°	2612	2610	2610	2626	2615	737
175°	2718	2712	2707	2723	2709	258
180°	2723	2723	2723	2723	2723	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	2.5	29.5	80.4	75.5	78.0
92.5°	50.9	69.0	71.5	73.9	73.9
95°	119.9	142.8	147.0	147.0	142.8
97.5°	199.5	220.8	229.9	229.9	229.9
100°	291.4	310.3	316.8	316.8	314.4
102.5°	388.3	402.3	411.3	413.7	411.3
105°	494.2	500.8	505.7	509.8	509.8
107.5°	599.3	609.2	609.2	610.8	599.3
110°	701.1	714.2	714.2	714.2	707.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	811.1	825.0	822.6	816.0	811.1
115°	919.5	932.5	928.5	926.0	919.5
117.5°	1027.0	1045.1	1033.5	1027.0	1020.4
120°	1135.3	1153.4	1135.3	1135.3	1128.0
122.5°	1233.8	1256.8	1245.3	1238.8	1233.8
125°	1337.3	1357.8	1351.3	1343.8	1341.4
127.5°	1438.3	1463.7	1454.7	1444.8	1438.3
130°	1532.7	1562.2	1558.1	1553.2	1544.2
132.5°	1638.6	1661.6	1663.2	1651.7	1645.1
135°	1729.7	1755.1	1760.1	1757.6	1751.0
137.5°	1831.5	1852.0	1856.1	1854.5	1844.6
140°	1921.0	1941.5	1953.0	1953.0	1944.0
142.5°	2012.9	2033.4	2040.0	2042.5	2033.4
145°	2099.9	2116.3	2129.5	2131.9	2122.9
147.5°	2177.9	2198.5	2208.3	2212.4	2203.4
150°	2258.4	2272.3	2281.4	2288.7	2281.4
152.5°	2329.8	2343.7	2355.3	2364.3	2355.3
155°	2401.2	2407.8	2415.2	2426.6	2419.2
157.5°	2462.8	2467.7	2471.8	2488.2	2476.7
160°	2517.8	2522.7	2525.1	2539.1	2529.3
162.5°	2568.7	2568.7	2571.1	2586.7	2575.2
165°	2612.2	2609.7	2609.7	2626.1	2614.7
167.5°	2651.6	2644.2	2644.2	2660.7	2649.1
170°	2681.1	2674.6	2672.1	2688.6	2674.6
172.5°	2701.6	2695.1	2692.6	2709.0	2695.1
175°	2718.1	2711.5	2706.6	2723.0	2709.0
177.5°	2727.1	2720.6	2715.6	2729.5	2715.6
180°	2723.0	2723.0	2723.0	2723.0	2723.0

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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	7.69	8.47	8.73	9.51	10.92	7.26	8.04	8.30	9.08	10.49
	3H	9.35	10.04	10.39	11.10	12.52	8.87	9.57	9.92	10.62	12.05
	4H	9.93	10.59	10.99	11.65	13.08	9.46	10.12	10.51	11.17	12.60
	6H	10.33	10.94	11.39	11.99	13.44	9.85	10.46	10.92	11.52	12.96
	8H	10.43	11.01	11.50	12.08	13.52	9.95	10.53	11.03	11.61	13.05
	12H	10.47	11.03	11.55	12.09	13.56	9.99	10.55	11.07	11.61	13.07
4H	2H	8.14	8.81	9.21	9.86	11.29	7.80	8.46	8.86	9.51	10.95
	3H	10.00	10.56	11.07	11.64	13.08	9.61	10.16	10.68	11.24	12.69
	4H	10.71	11.22	11.79	12.29	13.76	10.31	10.82	11.39	11.89	13.35
	6H	11.23	11.66	12.31	12.76	14.22	10.82	11.25	11.90	12.35	13.81
	8H	11.37	11.78	12.46	12.87	14.34	10.96	11.37	12.05	12.46	13.93
	12H	11.44	11.81	12.55	12.91	14.39	11.02	11.39	12.13	12.49	13.97
8H	4H	10.90	11.31	11.99	12.40	13.87	10.54	10.95	11.63	12.04	13.51
	6H	11.53	11.87	12.64	13.00	14.47	11.17	11.51	12.28	12.64	14.11
	8H	11.75	12.05	12.87	13.16	14.65	11.38	11.68	12.50	12.79	14.28
	12H	11.88	12.14	13.00	13.25	14.78	11.50	11.76	12.62	12.86	14.39
12H	4H	10.89	11.25	11.99	12.36	13.84	10.53	10.90	11.64	12.00	13.48
	6H	11.56	11.86	12.68	12.97	14.46	11.21	11.51	12.33	12.62	14.11
	8H	11.80	12.06	12.92	13.17	14.70	11.44	11.70	12.56	12.81	14.34