

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: P928268

Luminaire Tested: DFN2DIP-HX4F0-060D110US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928268
REPORT IS A COMBINATION OF REPORTS P900949 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D110US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

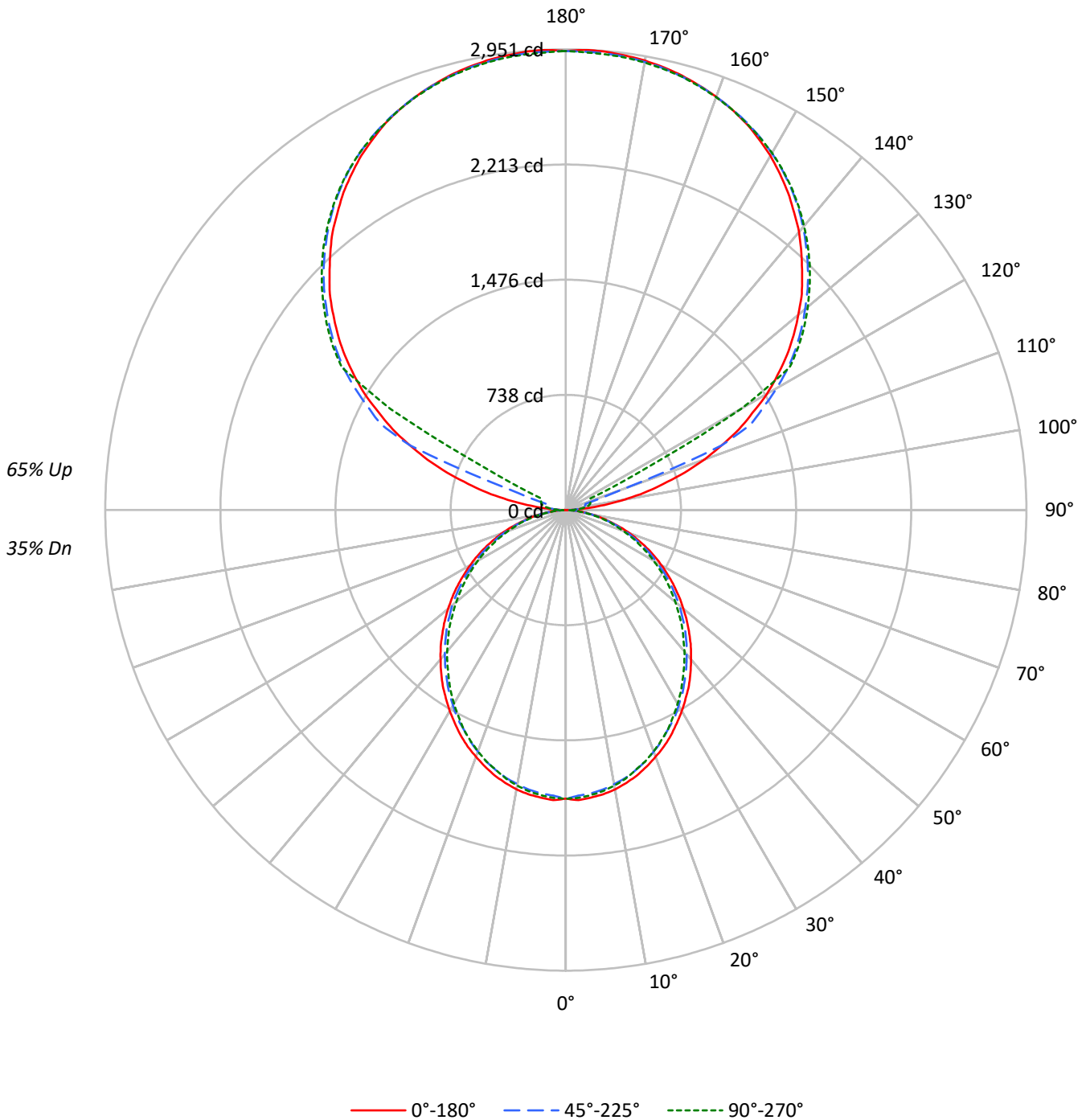
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13329.3 lumens
Efficiency: N/A
Efficacy: 94.3 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-Indirect

Input Watts (W): 141.4
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				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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43	35				35
1	95	90	86	83	85	82	79	76	66	64	62	51	50	48	38	37	36	30				30
2	86	79	73	68	78	71	66	62	58	54	51	45	43	40	33	32	30	25				25
3	78	69	62	56	71	63	57	52	51	46	43	40	37	34	29	27	26	21				21
4	72	61	53	48	65	56	49	44	45	40	36	35	32	29	26	24	22	18				18
5	66	54	46	41	59	50	43	38	40	35	31	32	28	25	24	21	19	16				16
6	60	49	41	35	54	44	37	32	36	31	27	29	25	22	21	19	17	14				14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	19	20	17	15	12				12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	15	13	11				11
9	48	36	29	24	43	33	27	22	27	22	19	22	18	15	17	14	12	10				10
10	45	33	26	21	41	30	24	20	25	20	17	20	16	14	15	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1375	1375	1375
5°	1377	1356	1365
10°	1366	1338	1346
15°	1346	1316	1318
20°	1319	1285	1288
25°	1292	1249	1254
30°	1259	1215	1211
35°	1227	1175	1165
40°	1187	1135	1121
45°	1148	1094	1076
50°	1105	1052	1025
55°	1060	1002	977
60°	1010	944	923
65°	954	884	858
70°	884	810	789
75°	786	722	726
80°	669	609	603
85°	485	415	402

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1509 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.0	1.3
10°-20°	489.7	3.7
20°-30°	719.6	5.4
30°-40°	835.8	6.3
40°-50°	834.7	6.3
50°-60°	727.9	5.5
60°-70°	538.1	4.0
70°-80°	304.4	2.3
80°-90°	85.5	0.6
90°-100°	96.9	0.7
100°-110°	361.4	2.7
110°-120°	958.5	7.2
120°-130°	1589.8	11.9
130°-140°	1688.7	12.7
140°-150°	1569.5	11.8
150°-160°	1261.8	9.5
160°-170°	813.1	6.1
170°-180°	279.9	2.1
0°-30°	1383.3	10.4
0°-40°	2219.1	16.6
0°-60°	3781.7	28.4
0°-90°	4709.6	35.3
90°-120°	1416.9	10.6
90°-150°	6264.9	47.0
90°-180°	8620.0	64.7
0°-180°	13329.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1849	1849	1849	1849	1849	
5°	1849	1842	1822	1837	1833	176
15°	1760	1750	1726	1734	1725	496
25°	1593	1579	1549	1552	1549	733
35°	1374	1357	1328	1317	1308	858
45°	1118	1106	1079	1060	1053	863
55°	846	836	814	793	784	757
65°	571	560	542	526	517	564
75°	299	295	286	276	279	319
85°	73	71	69	64	62	81
90°	2	26	42	53	57	12
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1223	1259	1313	328	175	1204
125°	1730	1757	1798	1813	1819	1543
135°	2140	2174	2193	2215	2211	1653
145°	2483	2481	2517	2532	2521	1553
155°	2734	2715	2740	2753	2736	1260
165°	2881	2868	2874	2889	2874	814
175°	2946	2932	2936	2951	2930	280
180°	2940	2940	2940	2940	2940	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1849.0	1849.0	1849.0	1849.0	1849.0
2.5°	1859.8	1850.9	1831.3	1849.0	1845.6
5°	1849.0	1842.0	1822.4	1836.6	1833.2
7.5°	1836.6	1826.0	1806.4	1820.7	1817.2
10°	1817.2	1804.7	1783.3	1797.5	1792.2
12.5°	1790.4	1779.8	1758.5	1767.3	1763.8
15°	1760.1	1749.6	1726.4	1733.6	1724.7
17.5°	1722.8	1712.3	1689.1	1697.9	1689.1
20°	1681.9	1671.4	1646.4	1651.7	1644.7
22.5°	1641.2	1625.1	1601.9	1601.9	1598.3
25°	1593.0	1578.9	1548.7	1552.1	1548.7
27.5°	1539.6	1527.2	1504.2	1498.9	1490.1
30°	1486.5	1472.1	1445.6	1440.3	1433.0
32.5°	1429.5	1418.9	1390.4	1379.7	1372.5
35°	1374.4	1356.7	1328.2	1317.4	1308.5
37.5°	1312.2	1296.1	1267.7	1255.2	1246.3
40°	1248.2	1233.9	1205.4	1189.6	1182.4
42.5°	1185.9	1171.6	1143.3	1125.4	1114.8
45°	1118.5	1105.9	1079.2	1059.8	1052.6
47.5°	1052.6	1040.1	1011.7	992.1	981.4
50°	983.2	974.3	949.4	924.5	915.6
52.5°	915.6	903.2	880.1	860.6	848.2
55°	846.4	835.6	814.3	793.0	784.2
57.5°	777.0	768.2	745.0	723.7	716.4
60°	707.6	700.6	675.7	656.1	650.8
62.5°	640.0	627.6	609.8	592.1	585.0
65°	570.8	560.1	542.4	526.3	517.4
67.5°	499.7	490.6	474.8	462.4	455.2
70°	433.9	426.7	410.7	398.2	391.2
72.5°	366.3	359.2	350.3	337.9	332.6
75°	298.6	295.3	286.1	275.6	279.2
77.5°	238.2	231.1	227.5	222.2	216.9
80°	177.9	176.0	172.4	167.1	163.5
82.5°	120.9	120.9	119.2	112.1	112.1
85°	72.8	71.1	69.4	63.9	62.3
87.5°	32.1	28.5	24.9	19.6	17.7
90°	2.1	25.5	42.5	53.3	57.3
92.5°	53.3	44.7	51.0	55.4	57.3
95°	138.2	68.0	82.8	93.7	91.5
97.5°	248.8	74.5	108.3	114.9	117.0
100°	376.7	85.1	121.3	138.2	142.5
102.5°	516.9	512.8	125.5	148.8	155.4
105°	646.7	710.7	129.9	153.1	161.7
107.5°	797.9	850.8	134.2	157.4	166.0
110°	942.6	987.1	372.4	159.7	168.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.8	1116.9	1080.8	163.7	170.3
115°	1223.2	1259.4	1312.7	327.7	174.6
117.5°	1348.9	1391.3	1427.7	1123.2	565.9
120°	1489.3	1521.1	1559.5	1585.0	1297.8
122.5°	1608.3	1642.4	1685.1	1697.7	1700.0
125°	1729.6	1757.4	1797.8	1812.7	1819.0
127.5°	1840.2	1870.0	1902.1	1923.3	1925.4
130°	1944.5	1978.7	2001.9	2025.4	2023.4
132.5°	2050.9	2078.7	2102.0	2121.1	2119.2
135°	2140.4	2174.4	2193.4	2214.9	2210.6
137.5°	2233.8	2259.3	2280.8	2302.0	2295.7
140°	2325.3	2342.4	2365.7	2384.9	2374.3
142.5°	2402.1	2416.9	2444.5	2461.5	2450.8
145°	2482.9	2480.6	2516.7	2531.7	2521.1
147.5°	2552.9	2546.6	2582.7	2593.3	2585.0
150°	2621.1	2606.2	2640.3	2653.0	2642.3
152.5°	2678.5	2661.5	2693.4	2706.3	2691.4
155°	2733.8	2714.8	2740.3	2753.0	2736.0
157.5°	2778.5	2761.5	2780.8	2795.7	2778.5
160°	2816.9	2804.0	2816.9	2829.5	2814.6
162.5°	2850.7	2838.1	2848.7	2863.6	2844.5
165°	2880.6	2867.9	2874.2	2889.1	2874.2
167.5°	2904.0	2891.2	2897.8	2912.7	2893.5
170°	2923.3	2910.4	2914.6	2929.6	2910.4
172.5°	2935.9	2923.3	2927.5	2942.4	2923.3
175°	2946.5	2931.6	2935.9	2950.8	2929.6
177.5°	2950.8	2935.9	2938.2	2953.1	2933.9
180°	2940.2	2940.2	2940.2	2940.2	2940.2



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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	6.85	7.59	7.92	8.66	10.13	6.41	7.16	7.49	8.23	9.70
	3H	8.50	9.16	9.58	10.25	11.73	8.03	8.69	9.11	9.77	11.26
	4H	9.08	9.71	10.17	10.80	12.29	8.61	9.24	9.70	10.32	11.81
	6H	9.48	10.06	10.58	11.15	12.65	9.00	9.58	10.10	10.67	12.17
	8H	9.58	10.13	10.68	11.23	12.73	9.10	9.66	10.21	10.76	12.26
	12H	9.62	10.15	10.73	11.24	12.76	9.14	9.67	10.25	10.76	12.28
4H	2H	7.29	7.93	8.39	9.01	10.50	6.95	7.58	8.05	8.67	10.16
	3H	9.15	9.68	10.26	10.79	12.29	8.76	9.28	9.86	10.40	11.90
	4H	9.86	10.34	10.97	11.45	12.97	9.45	9.94	10.57	11.04	12.56
	6H	10.37	10.79	11.49	11.91	13.43	9.96	10.38	11.08	11.50	13.02
	8H	10.52	10.90	11.64	12.02	13.55	10.10	10.49	11.22	11.61	13.14
	12H	10.58	10.94	11.72	12.07	13.60	10.16	10.51	11.30	11.64	13.18
8H	4H	10.05	10.44	11.17	11.55	13.08	9.69	10.08	10.81	11.19	12.72
	6H	10.68	11.00	11.82	12.15	13.68	10.31	10.63	11.45	11.79	13.32
	8H	10.90	11.18	12.04	12.32	13.86	10.53	10.81	11.67	11.95	13.49
	12H	11.02	11.27	12.17	12.40	13.99	10.64	10.88	11.79	12.02	13.60
12H	4H	10.03	10.38	11.16	11.51	13.05	9.68	10.03	10.81	11.16	12.69
	6H	10.70	10.99	11.85	12.12	13.67	10.35	10.63	11.50	11.77	13.32
	8H	10.94	11.19	12.09	12.32	13.91	10.58	10.83	11.74	11.97	13.55