

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: P907795

Luminaire Tested: DFN2DIP-4P4F0-050D070US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907795
REPORT IS A COMBINATION OF REPORTS P900651 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D070US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

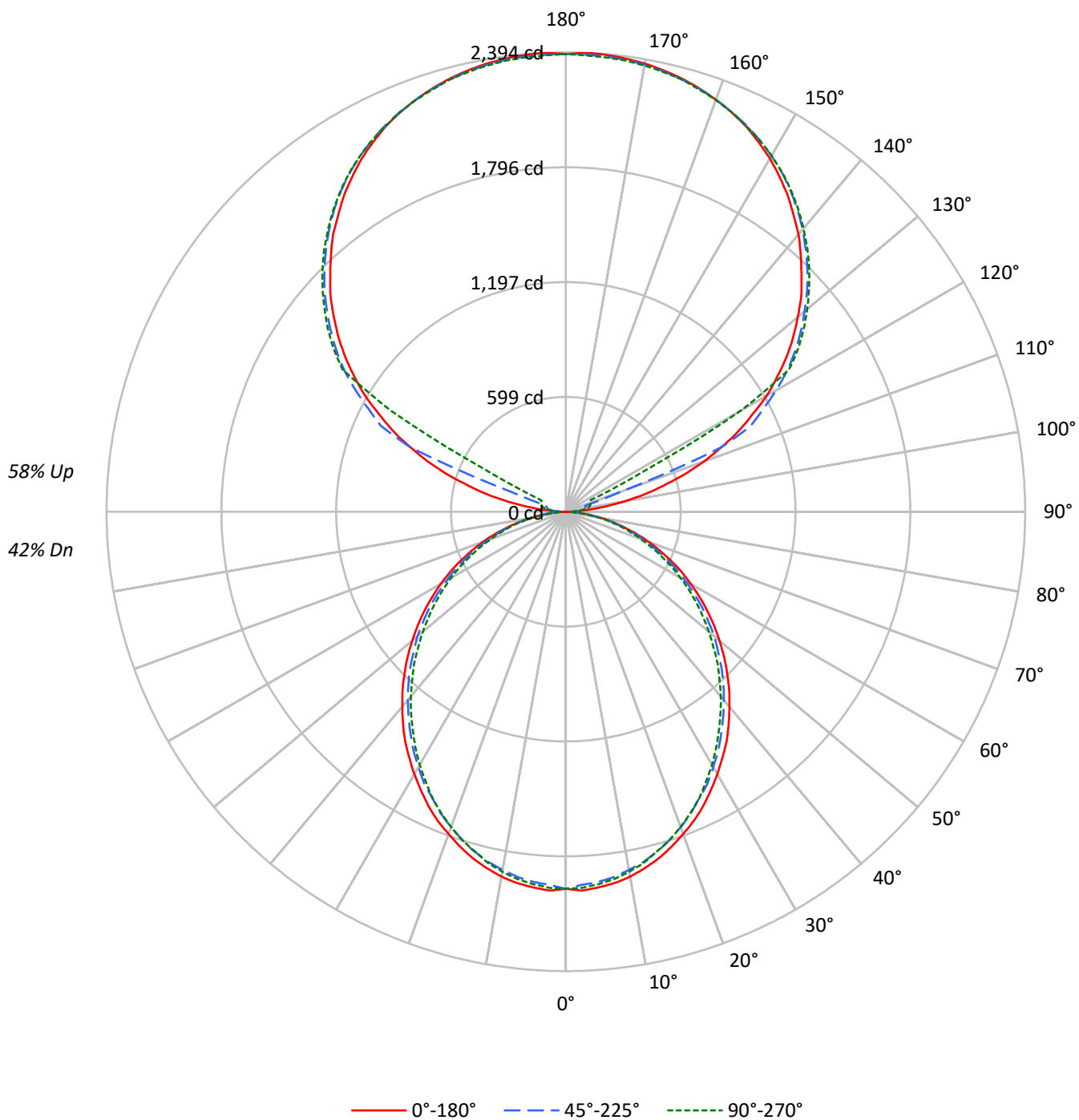
Lumens per Lamp: N/A
Luminaire Lumens: 11997.2 lumens
Efficiency: N/A
Efficacy: 107.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	88	84	87	84	80	78	69	67	65	55	54	52	43	42	41
2	87	80	74	69	79	73	68	64	60	57	53	49	46	44	38	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	40	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	35	32	30	27	25
5	67	55	47	41	61	51	44	39	42	37	33	34	30	27	27	24	22
6	62	50	42	36	56	46	39	33	38	33	29	31	27	24	24	22	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	41	33	28	48	37	31	26	31	26	22	26	22	19	20	18	15
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1275	1275	1275
5°	1277	1257	1266
10°	1266	1241	1249
15°	1248	1221	1223
20°	1223	1193	1196
25°	1198	1159	1165
30°	1167	1128	1125
35°	1137	1091	1083
40°	1101	1054	1043
45°	1064	1017	1001
50°	1024	978	954
55°	983	932	910
60°	936	879	861
65°	884	823	802
70°	819	756	739
75°	729	675	681
80°	620	572	570
85°	450	393	384

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1231 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.5
10°-20°	520.3	4.3
20°-30°	764.6	6.4
30°-40°	888.1	7.4
40°-50°	887.0	7.4
50°-60°	773.4	6.4
60°-70°	571.7	4.8
70°-80°	323.5	2.7
80°-90°	89.6	0.7
90°-100°	78.7	0.7
100°-110°	293.3	2.4
110°-120°	777.8	6.5
120°-130°	1290.0	10.8
130°-140°	1370.3	11.4
140°-150°	1273.5	10.6
150°-160°	1023.9	8.5
160°-170°	659.7	5.5
170°-180°	227.1	1.9
0°-30°	1469.8	12.3
0°-40°	2357.9	19.7
0°-60°	4018.3	33.5
0°-90°	5003.0	41.7
90°-120°	1149.7	9.6
90°-150°	5083.5	42.4
90°-180°	6994.0	58.3
0°-180°	11997.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	2	21	34	43	47	11
95°	112	55	67	76	74	133
105°	525	577	105	124	131	561
115°	993	1022	1065	266	142	977
125°	1403	1426	1459	1471	1476	1252
135°	1737	1764	1780	1797	1794	1342
145°	2015	2013	2042	2054	2046	1260
155°	2218	2203	2224	2234	2220	1022
165°	2337	2327	2332	2344	2332	660
175°	2391	2379	2382	2394	2377	228
180°	2386	2386	2386	2386	2386	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	1.6	20.7	34.4	43.2	46.6
92.5°	43.2	36.3	41.4	44.9	46.6
95°	112.1	55.1	67.3	76.0	74.2
97.5°	201.9	60.5	88.0	93.3	94.9
100°	305.7	69.1	98.4	112.1	115.6
102.5°	419.4	416.2	101.9	120.8	126.0
105°	524.8	576.6	105.3	124.2	131.2
107.5°	647.3	690.4	108.9	127.7	134.7
110°	764.9	800.9	302.2	129.6	136.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	875.4	906.3	877.0	132.8	138.1
115°	992.6	1021.9	1065.1	265.9	141.7
117.5°	1094.5	1128.9	1158.4	911.4	459.2
120°	1208.4	1234.3	1265.5	1286.2	1053.1
122.5°	1304.9	1332.6	1367.4	1377.6	1379.4
125°	1403.4	1425.9	1458.8	1470.9	1475.9
127.5°	1493.2	1517.3	1543.4	1560.6	1562.3
130°	1577.8	1605.5	1624.4	1643.5	1641.8
132.5°	1664.2	1686.7	1705.6	1721.1	1719.5
135°	1736.7	1764.3	1779.8	1797.2	1793.7
137.5°	1812.5	1833.3	1850.7	1867.9	1862.8
140°	1886.7	1900.7	1919.6	1935.1	1926.5
142.5°	1949.0	1961.2	1983.5	1997.2	1988.6
145°	2014.7	2012.9	2042.2	2054.3	2045.7
147.5°	2071.4	2066.4	2095.7	2104.3	2097.5
150°	2126.8	2114.8	2142.4	2152.6	2144.0
152.5°	2173.3	2159.6	2185.5	2195.9	2183.8
155°	2218.3	2202.8	2223.5	2233.8	2220.1
157.5°	2254.5	2240.8	2256.3	2268.5	2254.5
160°	2285.7	2275.2	2285.7	2295.9	2283.8
162.5°	2313.2	2302.9	2311.5	2323.6	2308.0
165°	2337.3	2327.1	2332.2	2344.3	2332.2
167.5°	2356.4	2345.9	2351.3	2363.4	2347.8
170°	2372.0	2361.6	2365.0	2377.1	2361.6
172.5°	2382.3	2372.0	2375.5	2387.5	2372.0
175°	2390.9	2378.7	2382.3	2394.3	2377.1
177.5°	2394.3	2382.3	2384.1	2396.2	2380.6
180°	2385.7	2385.7	2385.7	2385.7	2385.7

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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	7.32	8.11	8.34	9.14	10.52	6.87	7.66	7.90	8.70	10.08
	3H	8.98	9.69	10.01	10.73	12.13	8.49	9.19	9.52	10.24	11.64
	4H	9.56	10.24	10.61	11.28	12.69	9.07	9.74	10.12	10.79	12.20
	6H	9.96	10.58	11.02	11.63	13.06	9.46	10.08	10.52	11.13	12.56
	8H	10.07	10.66	11.13	11.72	13.14	9.57	10.16	10.63	11.22	12.64
	12H	10.12	10.68	11.19	11.74	13.18	9.61	10.17	10.68	11.23	12.67
4H	2H	7.77	8.44	8.82	9.49	10.90	7.41	8.09	8.47	9.13	10.54
	3H	9.63	10.20	10.70	11.27	12.69	9.23	9.79	10.29	10.86	12.28
	4H	10.35	10.86	11.42	11.93	13.37	9.93	10.44	10.99	11.50	12.95
	6H	10.87	11.31	11.94	12.40	13.84	10.43	10.88	11.51	11.96	13.40
	8H	11.02	11.43	12.10	12.51	13.97	10.58	10.99	11.66	12.07	13.53
	12H	11.09	11.46	12.19	12.56	14.02	10.64	11.01	11.74	12.11	13.57
8H	4H	10.54	10.95	11.62	12.03	13.49	10.17	10.58	11.24	11.66	13.11
	6H	11.18	11.52	12.28	12.64	14.09	10.79	11.13	11.89	12.26	13.71
	8H	11.40	11.70	12.51	12.80	14.28	11.01	11.31	12.12	12.41	13.88
	12H	11.53	11.80	12.64	12.90	14.41	11.12	11.39	12.23	12.48	14.00
12H	4H	10.52	10.90	11.62	11.99	13.45	10.16	10.53	11.25	11.62	13.08
	6H	11.21	11.51	12.31	12.61	14.08	10.84	11.13	11.94	12.24	13.71
	8H	11.45	11.71	12.56	12.81	14.32	11.07	11.33	12.18	12.43	13.94