

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: P916056

Luminaire Tested: DFN2DIP-4P4F0-080D080US930-RLFL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916056
REPORT IS A COMBINATION OF REPORTS P899150 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D080US930-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

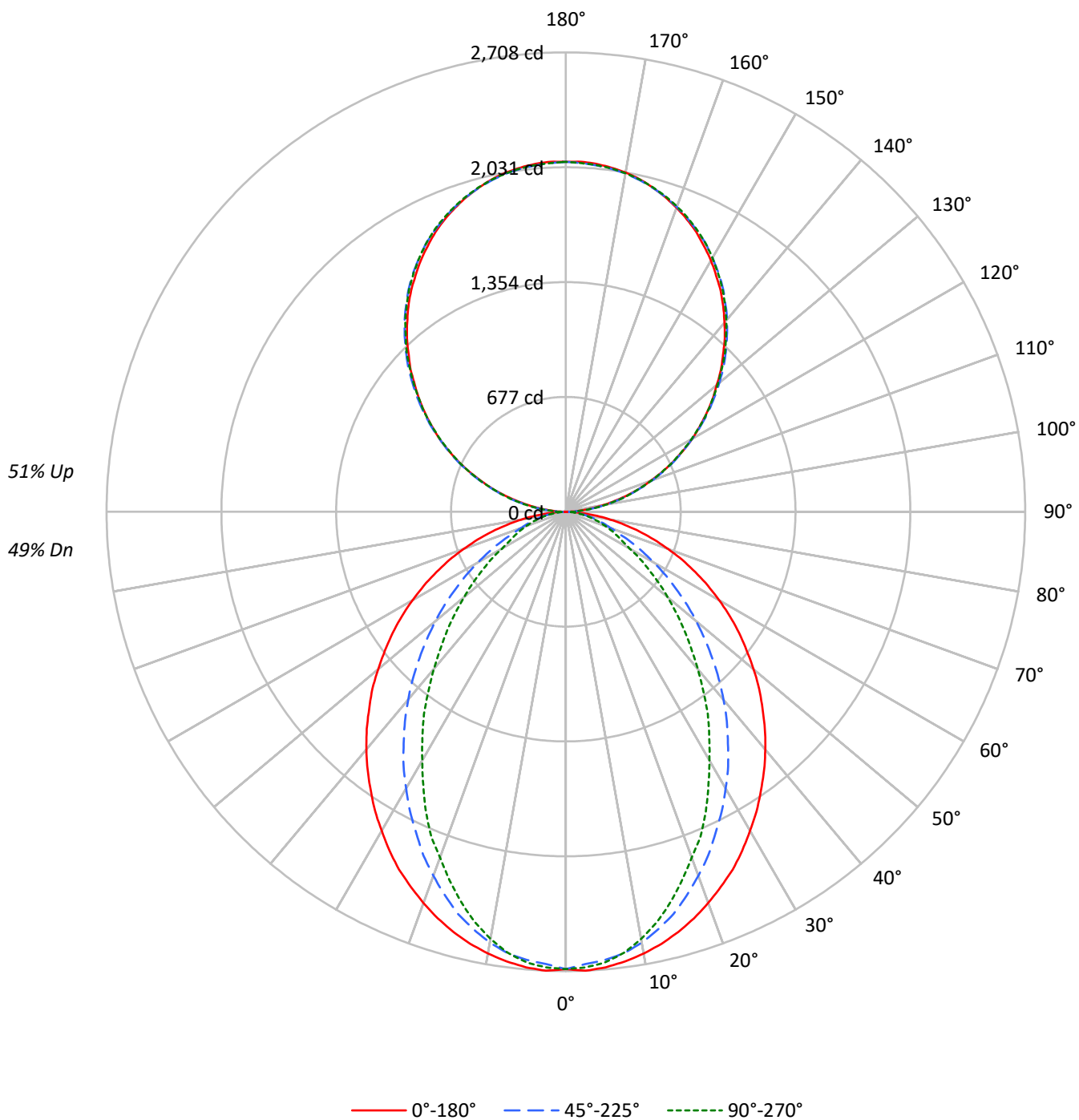
Lumens per Lamp: N/A
Luminaire Lumens: 11316.4 lumens
Efficiency: N/A
Efficacy: 71.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1749	1749	1749
5°	1752	1722	1733
10°	1734	1688	1677
15°	1711	1633	1590
20°	1679	1557	1484
25°	1647	1471	1381
30°	1604	1383	1251
35°	1561	1288	1136
40°	1518	1190	1004
45°	1468	1082	885
50°	1416	972	768
55°	1362	854	656
60°	1299	731	541
65°	1227	606	487
70°	1140	490	442
75°	1031	433	404
80°	872	365	352
85°	609	247	269

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1562 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	2.2
10°-20°	693.6	6.1
20°-30°	973.7	8.6
30°-40°	1061.4	9.4
40°-50°	975.6	8.6
50°-60°	766.2	6.8
60°-70°	498.7	4.4
70°-80°	256.7	2.3
80°-90°	71.4	0.6
90°-100°	127.6	1.1
100°-110°	405.6	3.6
110°-120°	694.1	6.1
120°-130°	912.8	8.1
130°-140°	1024.6	9.1
140°-150°	1004.7	8.9
150°-160°	842.8	7.4
160°-170°	558.9	4.9
170°-180°	195.4	1.7
0°-30°	1919.9	17.0
0°-40°	2981.4	26.3
0°-60°	4723.1	41.7
0°-90°	5549.9	49.0
90°-120°	1227.3	10.8
90°-150°	4169.4	36.8
90°-180°	5766.0	51.0
0°-180°	11316.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2696	2696	2696	2696	2696	
5°	2696	2684	2652	2674	2666	256
15°	2564	2537	2454	2408	2384	722
25°	2327	2249	2088	1988	1952	1070
35°	2005	1881	1666	1513	1459	1255
45°	1639	1476	1220	1046	988	1266
55°	1246	1056	793	646	600	1114
65°	842	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	22	61	57	59	11
95°	91	108	111	111	108	101
105°	374	379	383	386	386	395
115°	696	706	703	702	696	689
125°	1013	1029	1024	1018	1016	905
135°	1310	1330	1333	1332	1326	1013
145°	1591	1603	1613	1615	1608	994
155°	1819	1824	1830	1838	1833	837
165°	1979	1977	1977	1989	1981	558
175°	2059	2054	2050	2063	2052	196
180°	2063	2063	2063	2063	2063	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2695.7	2695.7	2695.7	2695.7	2695.7
2.5°	2707.9	2695.7	2668.8	2693.3	2688.4
5°	2695.7	2683.6	2651.7	2673.7	2666.4
7.5°	2673.7	2659.2	2625.0	2634.6	2622.4
10°	2644.4	2627.4	2578.7	2571.2	2556.7
12.5°	2608.0	2586.0	2519.9	2505.4	2478.5
15°	2563.9	2537.0	2454.2	2407.9	2383.5
17.5°	2512.7	2473.6	2371.1	2317.6	2278.4
20°	2454.2	2405.3	2283.4	2222.6	2168.7
22.5°	2390.8	2334.6	2193.1	2110.2	2073.7
25°	2327.4	2249.2	2088.2	1988.3	1951.6
27.5°	2251.8	2168.7	1990.6	1876.0	1819.8
30°	2171.3	2078.4	1883.3	1759.0	1693.0
32.5°	2093.1	1980.8	1781.0	1634.5	1573.4
35°	2005.4	1880.9	1666.3	1512.6	1458.7
37.5°	1919.9	1785.7	1558.9	1390.4	1329.6
40°	1829.7	1683.4	1446.6	1273.4	1210.0
42.5°	1737.0	1580.9	1334.5	1153.9	1093.0
45°	1639.4	1475.9	1219.8	1046.4	988.0
47.5°	1546.8	1373.6	1110.1	936.7	883.1
50°	1444.2	1271.1	1002.7	834.2	783.2
52.5°	1344.1	1161.1	900.2	739.2	692.9
55°	1246.5	1056.3	792.8	646.5	600.2
57.5°	1146.6	951.5	697.8	561.2	522.0
60°	1044.1	849.0	597.6	473.4	434.3
62.5°	944.2	749.0	512.3	395.3	375.9
65°	841.7	643.9	424.4	341.7	334.1
67.5°	744.1	546.4	341.7	299.9	292.8
70°	641.6	451.4	282.9	258.5	248.7
72.5°	544.0	363.4	236.6	217.2	212.2
75°	448.8	278.0	195.2	178.1	175.8
77.5°	353.8	197.5	153.8	143.9	139.0
80°	265.8	141.6	117.0	107.4	107.4
82.5°	185.3	95.2	80.5	75.6	75.6
85°	104.8	53.6	46.3	46.3	46.3
87.5°	39.1	19.4	19.4	17.1	17.1
90°	1.9	22.4	61.0	57.2	59.1
92.5°	38.6	52.3	54.1	55.9	55.9
95°	90.8	108.2	111.3	111.3	108.2
97.5°	151.2	167.3	174.1	174.1	174.1
100°	220.8	235.1	240.0	240.0	238.1
102.5°	294.2	304.8	311.5	313.4	311.5
105°	374.4	379.4	383.1	386.2	386.2
107.5°	454.0	461.5	461.5	462.7	454.0
110°	531.1	541.0	541.0	541.0	536.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	614.4	625.0	623.1	618.2	614.4
115°	696.5	706.5	703.4	701.5	696.5
117.5°	778.0	791.7	782.9	778.0	773.0
120°	860.1	873.8	860.1	860.1	854.4
122.5°	934.7	952.1	943.4	938.4	934.7
125°	1013.0	1028.6	1023.6	1018.0	1016.2
127.5°	1089.6	1108.8	1102.0	1094.5	1089.6
130°	1161.1	1183.4	1180.3	1176.6	1169.8
132.5°	1241.3	1258.7	1260.0	1251.2	1246.3
135°	1310.3	1329.6	1333.3	1331.5	1326.5
137.5°	1387.4	1403.0	1406.1	1404.8	1397.3
140°	1455.2	1470.7	1479.4	1479.4	1472.6
142.5°	1524.9	1540.4	1545.4	1547.3	1540.4
145°	1590.8	1603.2	1613.1	1615.0	1608.2
147.5°	1649.8	1665.4	1672.8	1676.0	1669.2
150°	1710.8	1721.3	1728.2	1733.8	1728.2
152.5°	1764.9	1775.5	1784.2	1791.0	1784.2
155°	1819.0	1824.0	1829.6	1838.3	1832.7
157.5°	1865.6	1869.4	1872.5	1884.9	1876.2
160°	1907.3	1911.1	1912.9	1923.5	1916.0
162.5°	1945.9	1945.9	1947.7	1959.6	1950.8
165°	1978.8	1976.9	1976.9	1989.4	1980.7
167.5°	2008.7	2003.1	2003.1	2015.5	2006.8
170°	2031.1	2026.1	2024.2	2036.7	2026.1
172.5°	2046.6	2041.7	2039.8	2052.2	2041.7
175°	2059.0	2054.1	2050.3	2062.8	2052.2
177.5°	2065.9	2060.9	2057.2	2067.8	2057.2
180°	2062.8	2062.8	2062.8	2062.8	2062.8

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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	9.02	9.84	9.99	10.82	12.11	4.98	5.80	5.95	6.78	8.07
	3H	10.70	11.43	11.68	12.42	13.73	6.17	6.90	7.15	7.89	9.20
	4H	11.31	12.01	12.31	13.00	14.32	6.62	7.31	7.61	8.31	9.63
	6H	11.74	12.38	12.74	13.38	14.71	6.94	7.58	7.95	8.58	9.91
	8H	11.87	12.47	12.88	13.49	14.82	7.03	7.64	8.04	8.66	9.98
	12H	11.93	12.51	12.95	13.52	14.87	7.08	7.65	8.09	8.66	10.01
4H	2H	9.03	9.73	10.04	10.72	12.04	5.57	6.27	6.58	7.26	8.58
	3H	10.87	11.45	11.88	12.47	13.80	6.93	7.50	7.94	8.53	9.86
	4H	11.56	12.09	12.58	13.11	14.46	7.48	8.00	8.49	9.02	10.37
	6H	12.08	12.54	13.11	13.58	14.93	7.90	8.35	8.93	9.39	10.74
	8H	12.26	12.69	13.29	13.72	15.08	8.03	8.45	9.06	9.48	10.85
	12H	12.36	12.74	13.41	13.79	15.16	8.09	8.47	9.14	9.52	10.89
8H	4H	11.53	11.96	12.56	12.99	14.35	7.76	8.18	8.79	9.21	10.58
	6H	12.10	12.45	13.16	13.53	14.89	8.28	8.63	9.33	9.70	11.07
	8H	12.32	12.63	13.39	13.69	15.07	8.47	8.78	9.53	9.84	11.22
	12H	12.47	12.74	13.53	13.79	15.22	8.59	8.86	9.66	9.92	11.34
12H	4H	11.48	11.87	12.53	12.91	14.28	7.76	8.15	8.81	9.19	10.56
	6H	12.08	12.39	13.14	13.45	14.83	8.33	8.64	9.39	9.70	11.08
	8H	12.30	12.57	13.37	13.63	15.05	8.54	8.81	9.61	9.87	11.29