

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: P921512

Luminaire Tested: DFN2DIP-4P4F0-080D080US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921512
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-4P4F0-080D080US940-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

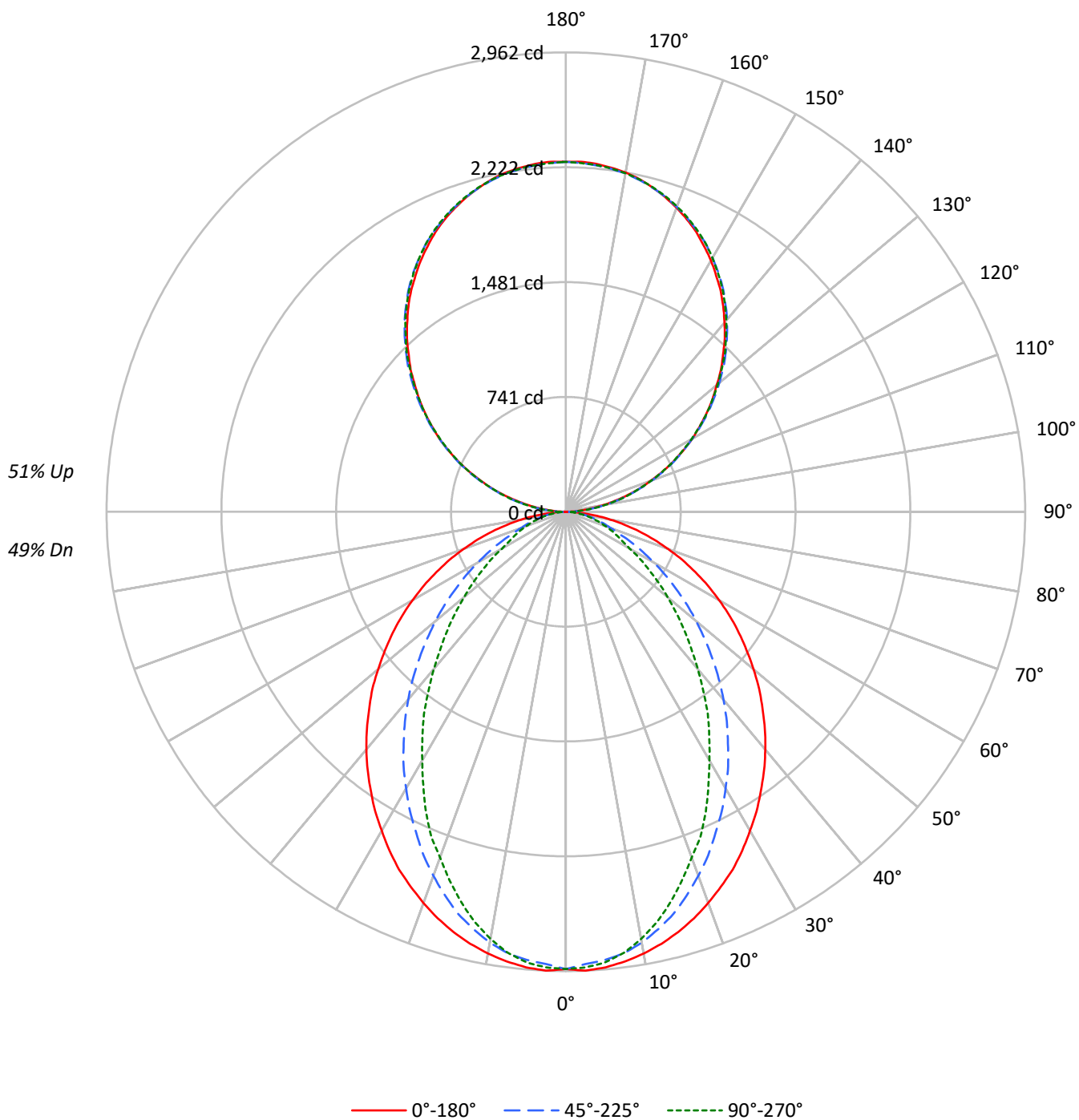
Lumens per Lamp: N/A
Luminaire Lumens: 12376.9 lumens
Efficiency: N/A
Efficacy: 77.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

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°	1913	1913	1913
5°	1916	1883	1895
10°	1897	1847	1834
15°	1871	1786	1739
20°	1837	1703	1623
25°	1801	1609	1511
30°	1754	1513	1368
35°	1708	1409	1242
40°	1661	1302	1098
45°	1606	1183	968
50°	1549	1063	840
55°	1490	934	717
60°	1421	800	591
65°	1342	663	533
70°	1247	536	484
75°	1127	474	442
80°	953	400	385
85°	667	270	294

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1707 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.3	2.2
10°-20°	758.6	6.1
20°-30°	1065.0	8.6
30°-40°	1160.9	9.4
40°-50°	1067.0	8.6
50°-60°	838.0	6.8
60°-70°	545.4	4.4
70°-80°	280.8	2.3
80°-90°	78.1	0.6
90°-100°	139.6	1.1
100°-110°	443.6	3.6
110°-120°	759.1	6.1
120°-130°	998.3	8.1
130°-140°	1120.6	9.1
140°-150°	1098.9	8.9
150°-160°	921.8	7.4
160°-170°	611.3	4.9
170°-180°	213.7	1.7
0°-30°	2099.9	17.0
0°-40°	3260.8	26.3
0°-60°	5165.8	41.7
0°-90°	6070.1	49.0
90°-120°	1342.3	10.8
90°-150°	4560.1	36.8
90°-180°	6307.0	51.0
0°-180°	12376.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	2	24	67	63	65	12
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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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	9.33	10.15	10.30	11.13	12.42	5.29	6.11	6.26	7.09	8.38
	3H	11.01	11.75	11.99	12.74	14.05	6.48	7.21	7.46	8.20	9.51
	4H	11.62	12.32	12.62	13.31	14.63	6.93	7.62	7.93	8.62	9.94
	6H	12.05	12.69	13.05	13.69	15.02	7.25	7.89	8.26	8.89	10.22
	8H	12.18	12.79	13.19	13.80	15.13	7.34	7.95	8.36	8.97	10.29
	12H	12.24	12.82	13.26	13.83	15.18	7.39	7.97	8.40	8.97	10.32
4H	2H	9.34	10.04	10.35	11.03	12.35	5.89	6.58	6.89	7.58	8.89
	3H	11.18	11.76	12.19	12.78	14.11	7.24	7.82	8.25	8.84	10.17
	4H	11.88	12.40	12.89	13.42	14.77	7.79	8.32	8.81	9.33	10.69
	6H	12.40	12.85	13.43	13.89	15.24	8.21	8.66	9.24	9.70	11.05
	8H	12.57	13.00	13.61	14.03	15.40	8.34	8.76	9.37	9.79	11.16
	12H	12.67	13.05	13.72	14.10	15.47	8.40	8.79	9.45	9.83	11.20
8H	4H	11.84	12.27	12.87	13.30	14.67	8.07	8.49	9.10	9.53	10.89
	6H	12.42	12.77	13.47	13.84	15.20	8.59	8.94	9.64	10.01	11.38
	8H	12.64	12.94	13.70	14.00	15.39	8.78	9.09	9.85	10.15	11.53
	12H	12.78	13.05	13.84	14.10	15.53	8.90	9.17	9.97	10.23	11.65
12H	4H	11.80	12.18	12.84	13.22	14.60	8.08	8.46	9.12	9.50	10.88
	6H	12.39	12.70	13.45	13.76	15.14	8.64	8.95	9.70	10.01	11.39
	8H	12.62	12.89	13.68	13.94	15.36	8.85	9.12	9.92	10.18	11.60

END OF REPORT