

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: P907805

Luminaire Tested: DFN2DIP-4P4F0-060D030US840-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907805
REPORT IS A COMBINATION OF REPORTS P900606 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D030US840-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

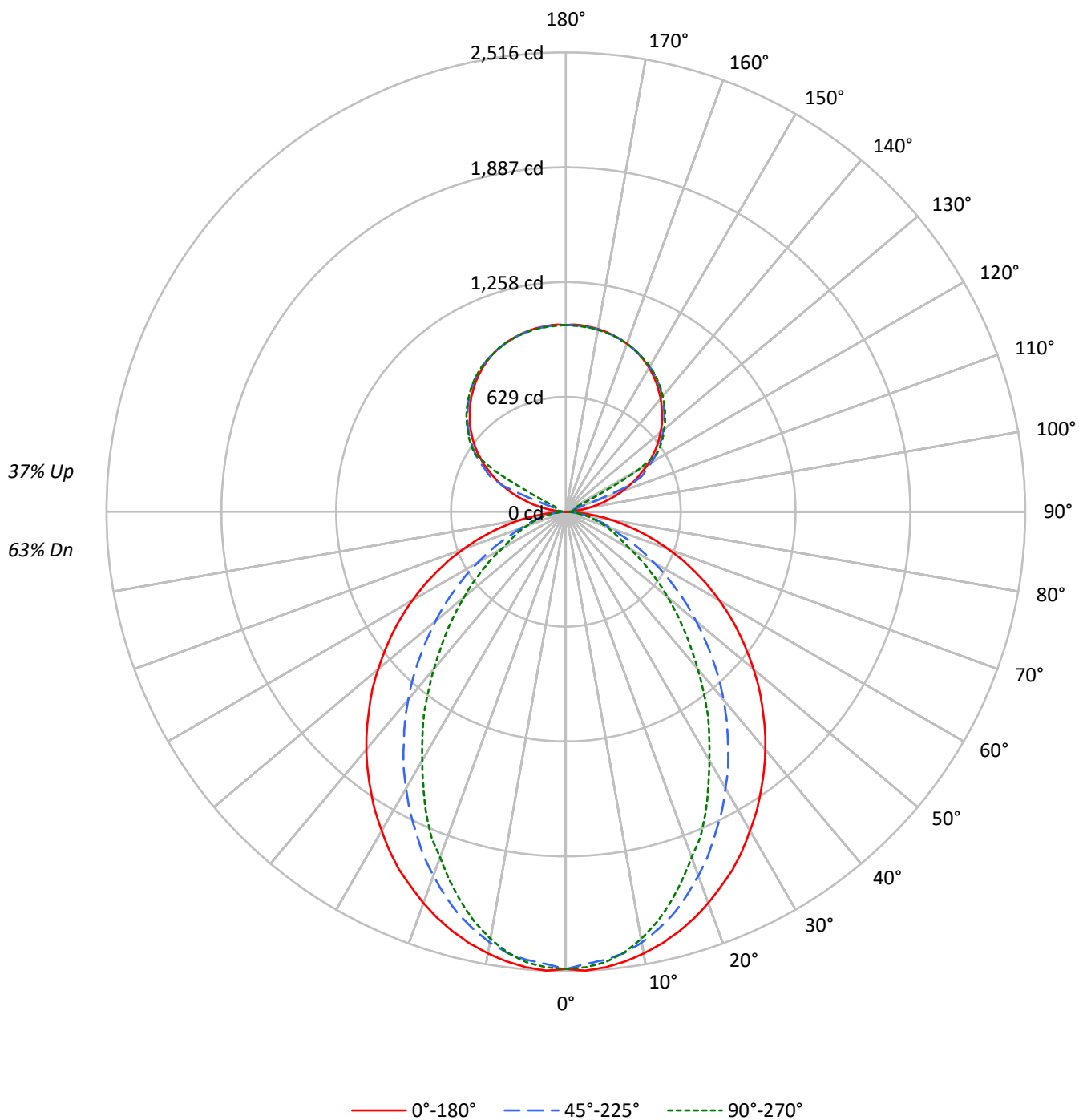
Lumens per Lamp: N/A
Luminaire Lumens: 8149.7 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 84.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1625	1625	1625
5°	1627	1599	1610
10°	1611	1568	1558
15°	1589	1517	1477
20°	1560	1446	1379
25°	1530	1367	1283
30°	1490	1285	1162
35°	1450	1197	1055
40°	1410	1106	933
45°	1364	1005	822
50°	1316	903	713
55°	1265	794	609
60°	1207	679	502
65°	1140	563	453
70°	1059	455	411
75°	957	402	375
80°	810	339	327
85°	566	229	250

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1364 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	2.9
10°-20°	644.3	7.9
20°-30°	904.6	11.1
30°-40°	986.1	12.1
40°-50°	906.3	11.1
50°-60°	711.7	8.7
60°-70°	463.3	5.7
70°-80°	238.5	2.9
80°-90°	62.7	0.8
90°-100°	33.7	0.4
100°-110°	125.7	1.5
110°-120°	333.3	4.1
120°-130°	552.9	6.8
130°-140°	587.3	7.2
140°-150°	545.8	6.7
150°-160°	438.8	5.4
160°-170°	282.8	3.5
170°-180°	97.3	1.2
0°-30°	1783.6	21.9
0°-40°	2769.6	34.0
0°-60°	4387.7	53.8
0°-90°	5152.1	63.2
90°-120°	492.7	6.0
90°-150°	2178.7	26.7
90°-180°	2998.0	36.8
0°-180°	8149.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2090	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	1	9	15	19	20	8
95°	48	24	29	33	32	57
105°	225	247	45	53	56	240
115°	425	438	456	114	61	419
125°	602	611	625	630	633	536
135°	744	756	763	770	769	575
145°	863	863	875	880	877	540
155°	951	944	953	957	952	438
165°	1002	997	1000	1005	1000	283
175°	1025	1020	1021	1026	1019	98
180°	1022	1022	1022	1022	1022	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.4	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	0.7	8.9	14.7	18.6	19.9
92.5°	18.6	15.6	17.8	19.3	19.9
95°	48.1	23.6	28.8	32.6	31.8
97.5°	86.5	26.0	37.7	40.0	40.7
100°	131.0	29.6	42.2	48.1	49.6
102.5°	179.8	178.3	43.6	51.7	54.0
105°	224.9	247.1	45.1	53.2	56.2
107.5°	277.4	295.9	46.7	54.7	57.8
110°	327.8	343.3	129.5	55.5	58.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	375.2	388.4	375.9	57.0	59.2
115°	425.4	438.0	456.5	113.9	60.7
117.5°	469.1	483.8	496.4	390.6	196.8
120°	517.9	529.0	542.3	551.2	451.3
122.5°	559.3	571.2	586.0	590.4	591.2
125°	601.5	611.1	625.2	630.4	632.6
127.5°	640.0	650.3	661.5	668.8	669.5
130°	676.2	688.1	696.2	704.3	703.7
132.5°	713.2	722.9	730.9	737.6	736.9
135°	744.3	756.2	762.8	770.2	768.7
137.5°	776.8	785.7	793.1	800.5	798.3
140°	808.6	814.6	822.6	829.3	825.7
142.5°	835.4	840.5	850.1	856.0	852.3
145°	863.4	862.6	875.3	880.4	876.7
147.5°	887.8	885.6	898.2	901.8	898.9
150°	911.5	906.4	918.2	922.5	918.9
152.5°	931.4	925.5	936.7	941.1	935.9
155°	950.7	944.1	952.9	957.4	951.5
157.5°	966.2	960.4	967.0	972.2	966.2
160°	979.6	975.1	979.6	984.0	978.8
162.5°	991.4	986.9	990.7	995.8	989.2
165°	1001.7	997.3	999.6	1004.7	999.6
167.5°	1009.9	1005.4	1007.6	1012.9	1006.2
170°	1016.5	1012.1	1013.6	1018.8	1012.1
172.5°	1021.0	1016.5	1018.0	1023.2	1016.5
175°	1024.6	1019.5	1021.0	1026.1	1018.8
177.5°	1026.1	1021.0	1021.8	1026.9	1020.3
180°	1022.5	1022.5	1022.5	1022.5	1022.5

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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	10.00	10.96	10.85	11.81	12.89	5.96	6.92	6.81	7.78	8.85
	3H	11.70	12.55	12.55	13.42	14.52	7.16	8.02	8.02	8.88	9.98
	4H	12.31	13.12	13.19	13.99	15.10	7.62	8.42	8.49	9.30	10.41
	6H	12.75	13.49	13.63	14.37	15.49	7.95	8.69	8.83	9.57	10.69
	8H	12.88	13.58	13.77	14.48	15.60	8.05	8.75	8.94	9.65	10.77
	12H	12.95	13.62	13.84	14.51	15.66	8.09	8.76	8.99	9.66	10.80
4H	2H	10.04	10.84	10.91	11.71	12.83	6.58	7.38	7.45	8.26	9.37
	3H	11.88	12.55	12.77	13.46	14.58	7.94	8.61	8.83	9.52	10.64
	4H	12.59	13.19	13.48	14.10	15.25	8.50	9.10	9.39	10.01	11.16
	6H	13.11	13.63	14.03	14.56	15.72	8.92	9.45	9.84	10.37	11.53
	8H	13.29	13.78	14.21	14.70	15.87	9.06	9.54	9.97	10.47	11.63
	12H	13.40	13.84	14.33	14.78	15.95	9.13	9.57	10.06	10.51	11.68
8H	4H	12.56	13.05	13.48	13.97	15.14	8.79	9.28	9.70	10.20	11.36
	6H	13.14	13.54	14.08	14.51	15.67	9.31	9.72	10.26	10.68	11.85
	8H	13.36	13.72	14.31	14.67	15.85	9.51	9.86	10.46	10.82	12.00
	12H	13.51	13.82	14.46	14.77	16.00	9.63	9.95	10.59	10.89	12.13
12H	4H	12.52	12.96	13.45	13.90	15.07	8.80	9.24	9.73	10.18	11.35
	6H	13.11	13.47	14.07	14.43	15.61	9.37	9.72	10.32	10.68	11.86
	8H	13.34	13.66	14.30	14.61	15.84	9.58	9.90	10.54	10.84	12.08