

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: P907713

Luminaire Tested: DFN2DIP-4P3F0-060D020US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907713
REPORT IS A COMBINATION OF REPORTS P900558 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D020US840-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

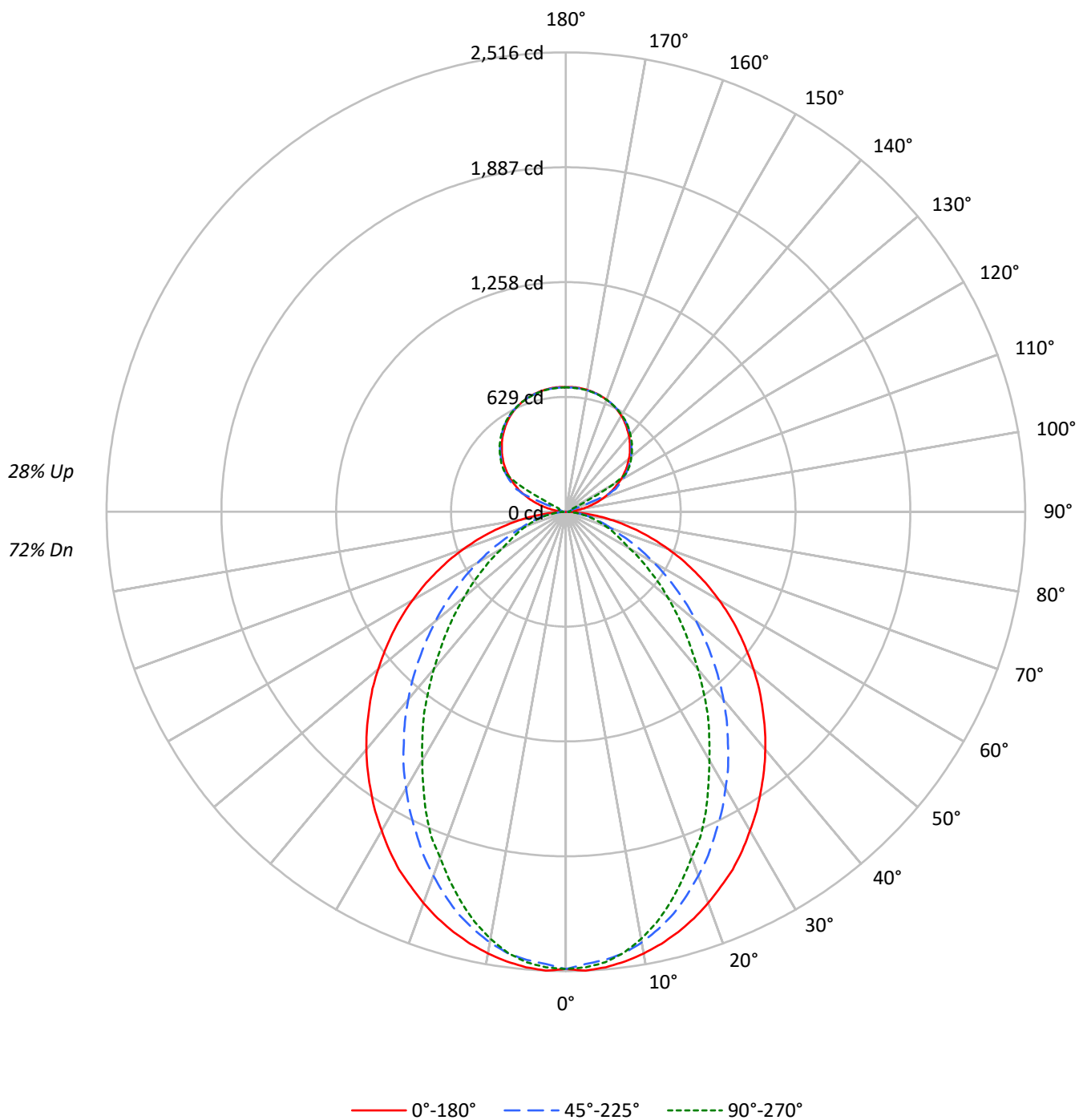
Lumens per Lamp: N/A
Luminaire Lumens: 7149.8 lumens
Efficiency: N/A
Efficacy: 92.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 77.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76
1	103	99	95	92	98	94	91	88	85	82	80	76	75	73	69	67	66
2	95	87	81	76	90	83	78	73	75	71	68	68	65	62	61	59	57
3	87	78	70	65	82	74	67	62	67	62	58	61	57	53	55	52	49
4	80	69	61	55	76	66	59	54	60	54	50	55	50	46	50	46	43
5	74	62	54	48	70	59	52	47	54	48	44	50	45	41	45	41	38
6	68	56	48	42	65	54	46	41	49	43	39	45	40	36	41	37	34
7	63	51	43	38	60	49	42	36	45	39	34	41	36	32	38	34	30
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	27
9	55	43	35	30	52	41	34	30	38	32	28	35	30	26	32	28	25
10	52	40	32	28	49	38	31	27	35	29	25	33	28	24	30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2854	2854	2854
5°	2857	2807	2826
10°	2827	2750	2733
15°	2786	2657	2590
20°	2733	2530	2415
25°	2678	2388	2246
30°	2605	2243	2031
35°	2534	2086	1843
40°	2461	1925	1628
45°	2377	1746	1433
50°	2290	1566	1242
55°	2199	1373	1058
60°	2093	1172	870
65°	1971	968	782
70°	1823	777	707
75°	1637	681	641
80°	1368	566	553
85°	928	368	410

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2377 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	3.3
10°-20°	644.3	9.0
20°-30°	904.6	12.7
30°-40°	986.1	13.8
40°-50°	906.3	12.7
50°-60°	711.7	10.0
60°-70°	463.3	6.5
70°-80°	238.5	3.3
80°-90°	62.1	0.9
90°-100°	22.5	0.3
100°-110°	83.8	1.2
110°-120°	222.2	3.1
120°-130°	368.6	5.2
130°-140°	391.5	5.5
140°-150°	363.9	5.1
150°-160°	292.5	4.1
160°-170°	188.5	2.6
170°-180°	64.9	0.9
0°-30°	1783.6	24.9
0°-40°	2769.6	38.7
0°-60°	4387.7	61.4
0°-90°	5151.5	72.1
90°-120°	328.5	4.6
90°-150°	1452.4	20.3
90°-180°	1998.0	27.9
0°-180°	7149.8	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°	0	6	10	12	13	7
95°	32	16	19	22	21	38
105°	150	165	30	35	38	160
115°	284	292	304	76	40	279
125°	401	407	417	420	422	358
135°	496	504	508	514	512	383
145°	576	575	584	587	584	360
155°	634	629	635	638	634	292
165°	668	665	666	670	666	189
175°	683	680	681	684	679	65
180°	682	682	682	682	682	

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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°	0.5	6.0	9.8	12.3	13.3
92.5°	12.3	10.4	11.8	12.8	13.3
95°	32.0	15.8	19.2	21.7	21.2
97.5°	57.7	17.3	25.1	26.7	27.2
100°	87.4	19.7	28.1	32.0	33.0
102.5°	119.9	118.9	29.1	34.5	36.1
105°	150.0	164.7	30.1	35.4	37.5
107.5°	185.0	197.2	31.1	36.5	38.5
110°	218.5	228.8	86.3	37.1	39.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	250.0	258.9	250.5	38.0	39.5
115°	283.6	292.0	304.4	75.9	40.5
117.5°	312.7	322.6	330.9	260.4	131.2
120°	345.3	352.6	361.5	367.5	300.8
122.5°	372.8	380.7	390.6	393.5	394.2
125°	401.0	407.4	416.8	420.2	421.7
127.5°	426.7	433.5	441.0	445.9	446.4
130°	450.8	458.7	464.1	469.6	469.1
132.5°	475.4	481.9	487.3	491.7	491.3
135°	496.2	504.1	508.5	513.5	512.5
137.5°	517.9	523.8	528.8	533.7	532.2
140°	539.1	543.1	548.5	552.9	550.5
142.5°	556.8	560.4	566.7	570.7	568.2
145°	575.6	575.1	583.5	586.9	584.5
147.5°	591.9	590.4	598.7	601.2	599.3
150°	607.6	604.2	612.1	615.0	612.6
152.5°	621.0	617.0	624.4	627.4	623.9
155°	633.8	629.3	635.3	638.2	634.3
157.5°	644.2	640.3	644.7	648.1	644.2
160°	653.1	650.1	653.1	656.0	652.6
162.5°	660.9	657.9	660.5	663.9	659.4
165°	667.8	664.9	666.3	669.8	666.3
167.5°	673.3	670.2	671.8	675.3	670.8
170°	677.7	674.7	675.7	679.1	674.7
172.5°	680.6	677.7	678.7	682.2	677.7
175°	683.1	679.6	680.6	684.1	679.1
177.5°	684.1	680.6	681.2	684.6	680.1
180°	681.7	681.7	681.7	681.7	681.7

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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	12.61	13.66	13.36	14.42	15.34	8.57	9.62	9.32	10.38	11.30
	3H	14.30	15.24	15.06	16.01	16.96	9.77	10.71	10.53	11.48	12.43
	4H	14.91	15.80	15.69	16.58	17.55	10.22	11.11	11.00	11.89	12.86
	6H	15.34	16.16	16.14	16.95	17.93	10.55	11.37	11.34	12.16	13.14
	8H	15.47	16.25	16.28	17.06	18.04	10.64	11.42	11.45	12.23	13.21
	12H	15.54	16.28	16.35	17.08	18.09	10.69	11.43	11.50	12.24	13.24
4H	2H	12.65	13.54	13.44	14.32	15.28	9.19	10.07	9.97	10.86	11.82
	3H	14.49	15.23	15.29	16.05	17.03	10.55	11.29	11.35	12.11	13.08
	4H	15.19	15.86	16.00	16.68	17.68	11.10	11.77	11.91	12.59	13.60
	6H	15.71	16.29	16.54	17.13	18.15	11.53	12.10	12.35	12.95	13.96
	8H	15.89	16.43	16.72	17.27	18.29	11.66	12.19	12.49	13.03	14.06
	12H	15.99	16.48	16.84	17.34	18.37	11.73	12.21	12.58	13.07	14.10
8H	4H	15.17	15.71	16.01	16.55	17.58	11.40	11.93	12.23	12.77	13.80
	6H	15.74	16.19	16.60	17.07	18.09	11.91	12.36	12.77	13.24	14.26
	8H	15.96	16.35	16.83	17.23	18.27	12.10	12.50	12.97	13.37	14.41
	12H	16.10	16.45	16.97	17.32	18.41	12.22	12.57	13.10	13.44	14.54
12H	4H	15.14	15.62	15.99	16.48	17.51	11.41	11.89	12.26	12.75	13.78
	6H	15.72	16.11	16.59	16.99	18.03	11.96	12.36	12.83	13.23	14.28
	8H	15.95	16.29	16.82	17.16	18.26	12.18	12.52	13.05	13.39	14.49