

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: P919727

Luminaire Tested: DFN2DIP-PN4F0-090D120US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919727
REPORT IS A COMBINATION OF REPORTS P901284 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D120US935-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

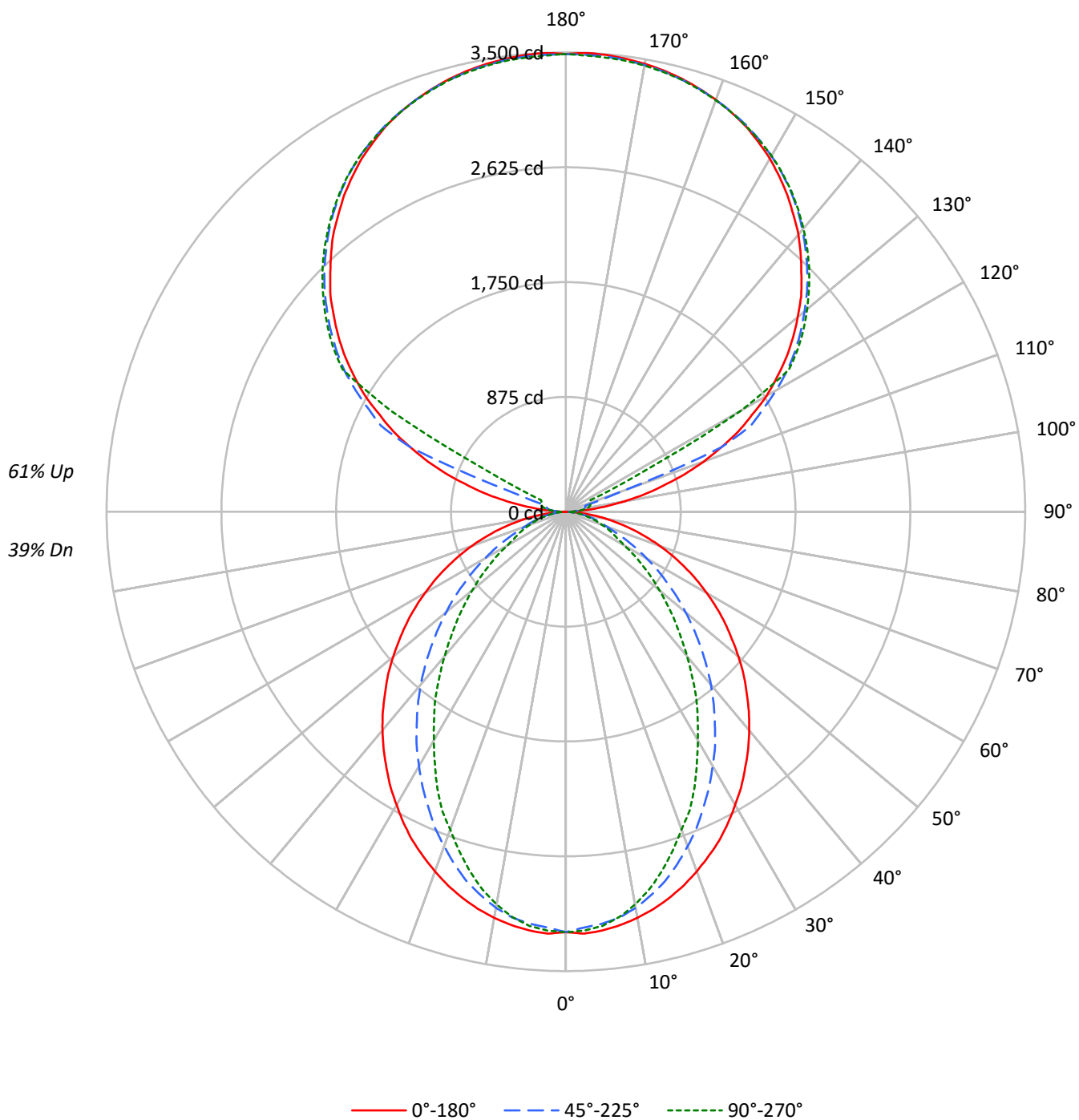
Lumens per Lamp: N/A
Luminaire Lumens: 16815.3 lumens
Efficiency: N/A
Efficacy: 87.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 191.9
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2338	2338	2338
5°	2342	2301	2316
10°	2318	2256	2241
15°	2286	2182	2125
20°	2244	2079	1982
25°	2201	1964	1844
30°	2143	1847	1670
35°	2086	1720	1516
40°	2028	1589	1340
45°	1961	1443	1180
50°	1891	1296	1024
55°	1819	1139	874
60°	1735	975	720
65°	1638	807	649
70°	1521	651	588
75°	1374	575	536
80°	1160	483	466
85°	808	324	353

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1961 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.2	1.8
10°-20°	824.0	4.9
20°-30°	1156.9	6.9
30°-40°	1261.0	7.5
40°-50°	1159.0	6.9
50°-60°	910.3	5.4
60°-70°	592.5	3.5
70°-80°	305.0	1.8
80°-90°	84.0	0.5
90°-100°	115.0	0.7
100°-110°	428.6	2.5
110°-120°	1136.8	6.8
120°-130°	1885.4	11.2
130°-140°	2002.8	11.9
140°-150°	1861.3	11.1
150°-160°	1496.5	8.9
160°-170°	964.3	5.7
170°-180°	331.9	2.0
0°-30°	2281.0	13.6
0°-40°	3542.0	21.1
0°-60°	5611.3	33.4
0°-90°	6592.8	39.2
90°-120°	1680.4	10.0
90°-150°	7429.9	44.2
90°-180°	10223.0	60.8
0°-180°	16815.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3203	3203	3203	3203	3203	
5°	3203	3188	3150	3176	3168	304
15°	3046	3014	2916	2861	2832	858
25°	2765	2672	2481	2362	2319	1272
35°	2383	2235	1980	1797	1733	1491
45°	1948	1753	1449	1243	1174	1504
55°	1481	1255	942	768	713	1323
65°	1000	765	504	406	397	991
75°	533	330	232	212	209	564
85°	124	64	55	55	55	143
90°	2	30	50	63	68	16
95°	164	81	98	111	108	194
105°	767	843	154	182	192	820
115°	1451	1494	1557	389	207	1428
125°	2051	2084	2132	2150	2157	1829
135°	2538	2579	2601	2627	2622	1961
145°	2945	2942	2985	3002	2990	1842
155°	3242	3220	3250	3265	3245	1494
165°	3416	3401	3409	3426	3409	965
175°	3494	3477	3482	3500	3474	333
180°	3487	3487	3487	3487	3487	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3202.7	3202.7	3202.7	3202.7	3202.7
2.5°	3217.1	3202.7	3170.6	3199.9	3194.0
5°	3202.7	3188.2	3150.4	3176.5	3167.9
7.5°	3176.5	3159.3	3118.7	3130.1	3115.6
10°	3141.8	3121.5	3063.7	3054.7	3037.5
12.5°	3098.4	3072.3	2993.9	2976.6	2944.6
15°	3046.1	3014.2	2915.8	2860.7	2831.8
17.5°	2985.3	2938.8	2817.0	2753.4	2707.0
20°	2915.8	2857.7	2712.7	2640.5	2576.5
22.5°	2840.4	2773.7	2605.5	2507.1	2463.7
25°	2765.1	2672.2	2481.0	2362.2	2318.6
27.5°	2675.3	2576.5	2365.0	2228.8	2162.1
30°	2579.6	2469.3	2237.4	2089.8	2011.4
32.5°	2486.7	2353.3	2115.9	1941.9	1869.3
35°	2382.6	2234.6	1979.7	1797.1	1733.1
37.5°	2281.0	2121.5	1852.1	1651.9	1579.7
40°	2173.8	2000.0	1718.6	1512.9	1437.6
42.5°	2063.6	1878.3	1585.4	1370.9	1298.6
45°	1947.7	1753.4	1449.2	1243.2	1173.7
47.5°	1837.6	1631.9	1318.9	1112.8	1049.2
50°	1715.9	1510.1	1191.3	991.1	930.5
52.5°	1596.9	1379.5	1069.5	878.2	823.2
55°	1480.9	1254.9	941.8	768.2	713.1
57.5°	1362.3	1130.4	829.1	666.7	620.3
60°	1240.4	1008.6	710.1	562.4	516.0
62.5°	1121.8	889.9	608.6	469.6	446.5
65°	1000.0	765.1	504.3	405.9	397.0
67.5°	884.1	649.1	405.9	356.4	347.8
70°	762.3	536.3	336.1	307.2	295.5
72.5°	646.4	431.7	281.0	258.0	252.2
75°	533.2	330.3	231.9	211.5	208.8
77.5°	420.3	234.6	182.6	171.0	165.1
80°	315.8	168.2	139.0	127.6	127.6
82.5°	220.2	113.1	95.7	89.8	89.8
85°	124.5	63.6	55.0	55.0	55.0
87.5°	46.4	23.1	23.1	20.3	20.3
90°	2.4	30.2	50.4	63.2	68.0
92.5°	63.2	53.0	60.5	65.6	68.0
95°	163.8	80.6	98.2	111.2	108.5
97.5°	295.2	88.4	128.5	136.3	138.7
100°	446.7	101.0	143.8	163.8	169.0
102.5°	613.0	608.2	148.9	176.5	184.3
105°	767.0	842.8	154.0	181.6	191.7
107.5°	946.2	1009.1	159.1	186.7	196.8
110°	1117.8	1170.6	441.6	189.3	199.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1279.4	1324.6	1281.8	194.2	201.9
115°	1450.7	1493.6	1556.8	388.6	207.1
117.5°	1599.6	1650.0	1693.2	1332.0	671.1
120°	1766.3	1804.0	1849.5	1879.8	1539.1
122.5°	1907.4	1947.8	1998.5	2013.4	2016.1
125°	2051.2	2084.1	2132.1	2149.7	2157.2
127.5°	2182.4	2217.8	2255.8	2281.0	2283.4
130°	2306.1	2346.6	2374.1	2402.0	2399.6
132.5°	2432.2	2465.2	2492.8	2515.6	2513.2
135°	2538.3	2578.8	2601.2	2626.7	2621.7
137.5°	2649.2	2679.4	2704.9	2730.1	2722.6
140°	2757.7	2778.0	2805.6	2828.4	2815.8
142.5°	2848.7	2866.4	2899.1	2919.1	2906.6
145°	2944.6	2941.9	2984.7	3002.5	2989.8
147.5°	3027.6	3020.1	3063.0	3075.6	3065.7
150°	3108.5	3090.8	3131.3	3146.3	3133.7
152.5°	3176.5	3156.4	3194.2	3209.5	3191.8
155°	3242.1	3219.6	3249.9	3264.9	3244.8
157.5°	3295.1	3275.1	3297.9	3315.5	3295.1
160°	3340.7	3325.4	3340.7	3355.7	3338.0
162.5°	3380.9	3365.9	3378.5	3396.1	3373.4
165°	3416.2	3401.2	3408.7	3426.4	3408.7
167.5°	3444.1	3428.8	3436.6	3454.2	3431.5
170°	3466.8	3451.6	3456.6	3474.3	3451.6
172.5°	3481.8	3466.8	3472.0	3489.6	3466.8
175°	3494.4	3476.7	3481.8	3499.5	3474.3
177.5°	3499.5	3481.8	3484.5	3502.2	3479.5
180°	3487.0	3487.0	3487.0	3487.0	3487.0

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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	9.01	9.76	10.06	10.81	12.23	4.97	5.72	6.02	6.77	8.19
	3H	10.68	11.35	11.74	12.41	13.85	6.15	6.82	7.21	7.88	9.32
	4H	11.29	11.92	12.36	12.98	14.43	6.60	7.24	7.67	8.30	9.74
	6H	11.71	12.29	12.79	13.36	14.81	6.92	7.50	8.00	8.57	10.03
	8H	11.83	12.39	12.92	13.47	14.92	7.01	7.56	8.09	8.64	10.10
	12H	11.89	12.42	12.98	13.49	14.97	7.05	7.58	8.14	8.65	10.13
4H	2H	9.01	9.65	10.09	10.71	12.16	5.56	6.19	6.64	7.25	8.70
	3H	10.84	11.37	11.92	12.46	13.91	6.90	7.43	7.99	8.52	9.98
	4H	11.53	12.01	12.62	13.09	14.57	7.45	7.93	8.54	9.01	10.49
	6H	12.04	12.46	13.14	13.56	15.03	7.86	8.28	8.96	9.38	10.85
	8H	12.22	12.61	13.32	13.70	15.19	7.99	8.38	9.09	9.47	10.96
	12H	12.31	12.66	13.43	13.77	15.26	8.05	8.40	9.17	9.51	11.00
8H	4H	11.49	11.88	12.59	12.97	14.46	7.72	8.11	8.82	9.21	10.69
	6H	12.06	12.38	13.18	13.51	15.00	8.24	8.56	9.36	9.70	11.18
	8H	12.28	12.56	13.40	13.67	15.18	8.43	8.71	9.56	9.83	11.34
	12H	12.41	12.66	13.54	13.77	15.32	8.55	8.79	9.68	9.91	11.45
12H	4H	11.44	11.79	12.56	12.90	14.39	7.72	8.07	8.84	9.18	10.68
	6H	12.03	12.31	13.16	13.43	14.94	8.29	8.57	9.42	9.69	11.19
	8H	12.25	12.50	13.38	13.61	15.16	8.50	8.74	9.63	9.86	11.40