

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: P921089

Luminaire Tested: DFN2DIP-TR4F0-080D120US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921089
REPORT IS A COMBINATION OF REPORTS P902042 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D120US935-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

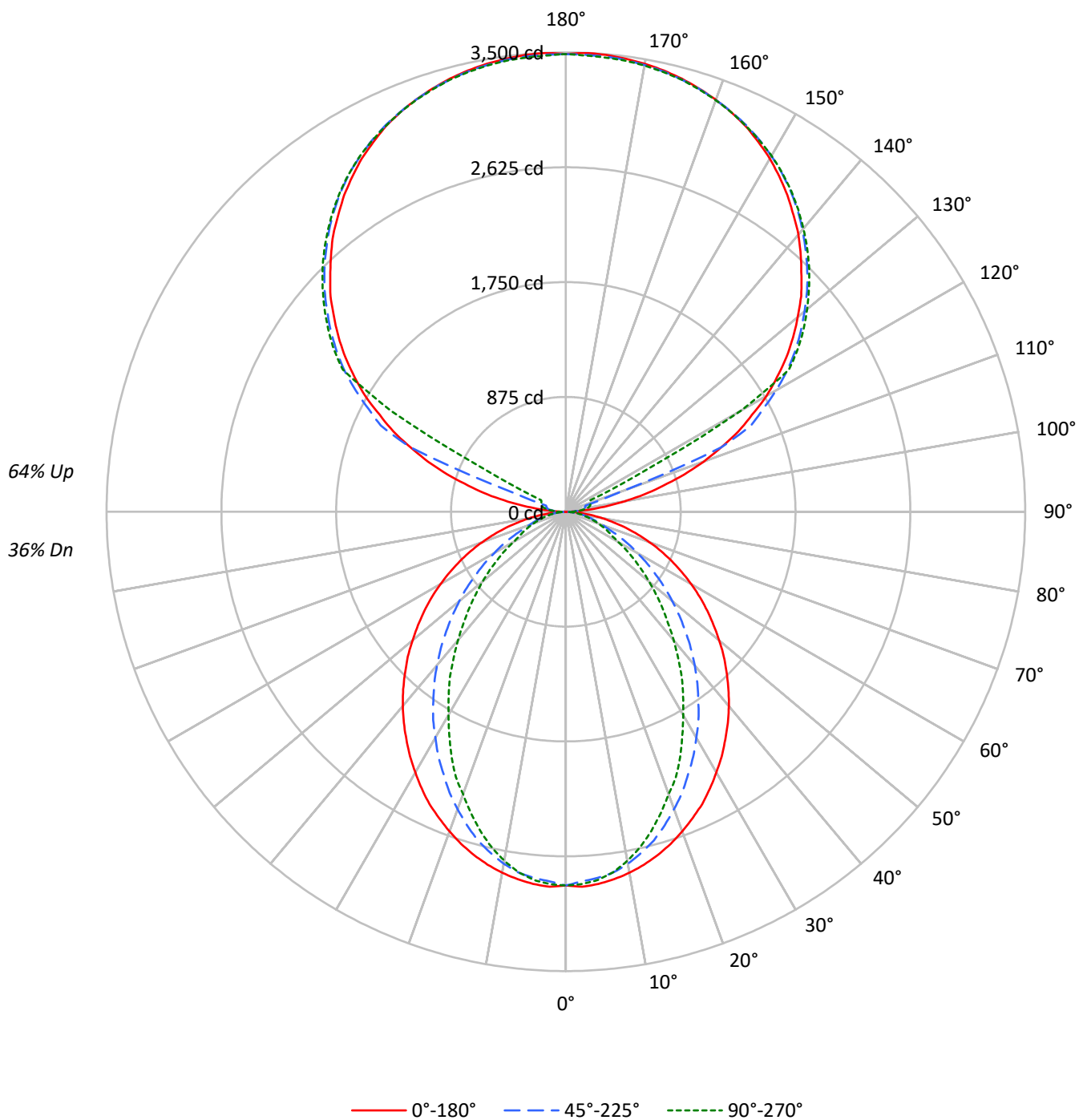
Lumens per Lamp: N/A
Luminaire Lumens: 16083.5 lumens
Efficiency: N/A
Efficacy: 96.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 166.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	0
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	38	38	31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	32	32	27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	28	28	23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	24	24	20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	21	21	18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	19	19	16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	17	17	14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	15	15	13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	14	14	12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	13	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2262	2262	2262
5°	2265	2226	2240
10°	2243	2182	2167
15°	2212	2110	2054
20°	2171	2010	1916
25°	2129	1899	1782
30°	2073	1785	1613
35°	2018	1662	1464
40°	1962	1535	1293
45°	1897	1394	1139
50°	1830	1251	988
55°	1760	1099	843
60°	1678	940	694
65°	1585	778	624
70°	1472	628	565
75°	1329	553	514
80°	1123	464	445
85°	783	309	334

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1897 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	266.8	1.7
10°-20°	732.4	4.6
20°-30°	1028.3	6.4
30°-40°	1120.9	7.0
40°-50°	1030.3	6.4
50°-60°	809.1	5.0
60°-70°	526.6	3.3
70°-80°	271.1	1.7
80°-90°	75.3	0.5
90°-100°	115.0	0.7
100°-110°	428.6	2.7
110°-120°	1136.8	7.1
120°-130°	1885.4	11.7
130°-140°	2002.8	12.5
140°-150°	1861.3	11.6
150°-160°	1496.5	9.3
160°-170°	964.3	6.0
170°-180°	331.9	2.1
0°-30°	2027.6	12.6
0°-40°	3148.5	19.6
0°-60°	4987.8	31.0
0°-90°	5860.9	36.4
90°-120°	1680.4	10.4
90°-150°	7429.9	46.2
90°-180°	10223.0	63.6
0°-180°	16083.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	2	30	50	63	68	15
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°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.8	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.1	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
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	8.56	9.29	9.63	10.36	11.82	4.54	5.27	5.61	6.34	7.79
	3H	10.23	10.88	11.31	11.96	13.44	5.72	6.37	6.80	7.45	8.92
	4H	10.84	11.45	11.93	12.53	14.01	6.16	6.78	7.26	7.86	9.34
	6H	11.25	11.82	12.35	12.90	14.39	6.48	7.05	7.58	8.13	9.62
	8H	11.38	11.92	12.48	13.01	14.50	6.57	7.11	7.67	8.21	9.69
	12H	11.43	11.95	12.54	13.04	14.55	6.61	7.12	7.72	8.22	9.72
4H	2H	8.57	9.19	9.67	10.27	11.75	5.12	5.74	6.22	6.82	8.30
	3H	10.39	10.90	11.49	12.01	13.50	6.46	6.98	7.57	8.08	9.57
	4H	11.08	11.55	12.19	12.64	14.16	7.01	7.48	8.11	8.57	10.09
	6H	11.59	11.99	12.70	13.11	14.62	7.42	7.82	8.54	8.94	10.45
	8H	11.76	12.14	12.88	13.25	14.77	7.55	7.93	8.66	9.04	10.56
	12H	11.85	12.19	12.98	13.31	14.84	7.61	7.95	8.74	9.07	10.60
8H	4H	11.04	11.41	12.15	12.53	14.05	7.28	7.66	8.39	8.77	10.29
	6H	11.60	11.91	12.74	13.06	14.58	7.79	8.11	8.93	9.26	10.78
	8H	11.82	12.09	12.96	13.22	14.76	7.99	8.26	9.13	9.39	10.93
	12H	11.95	12.19	13.10	13.32	14.89	8.10	8.34	9.25	9.47	11.04
12H	4H	10.98	11.33	12.12	12.45	13.98	7.28	7.62	8.41	8.74	10.27
	6H	11.57	11.85	12.72	12.98	14.52	7.84	8.12	8.99	9.25	10.79
	8H	11.79	12.03	12.94	13.16	14.73	8.05	8.29	9.20	9.42	10.99