

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: P912930

Luminaire Tested: DFN2DIP-TR4F0-090D100US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912930
REPORT IS A COMBINATION OF REPORTS P900487 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D100US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

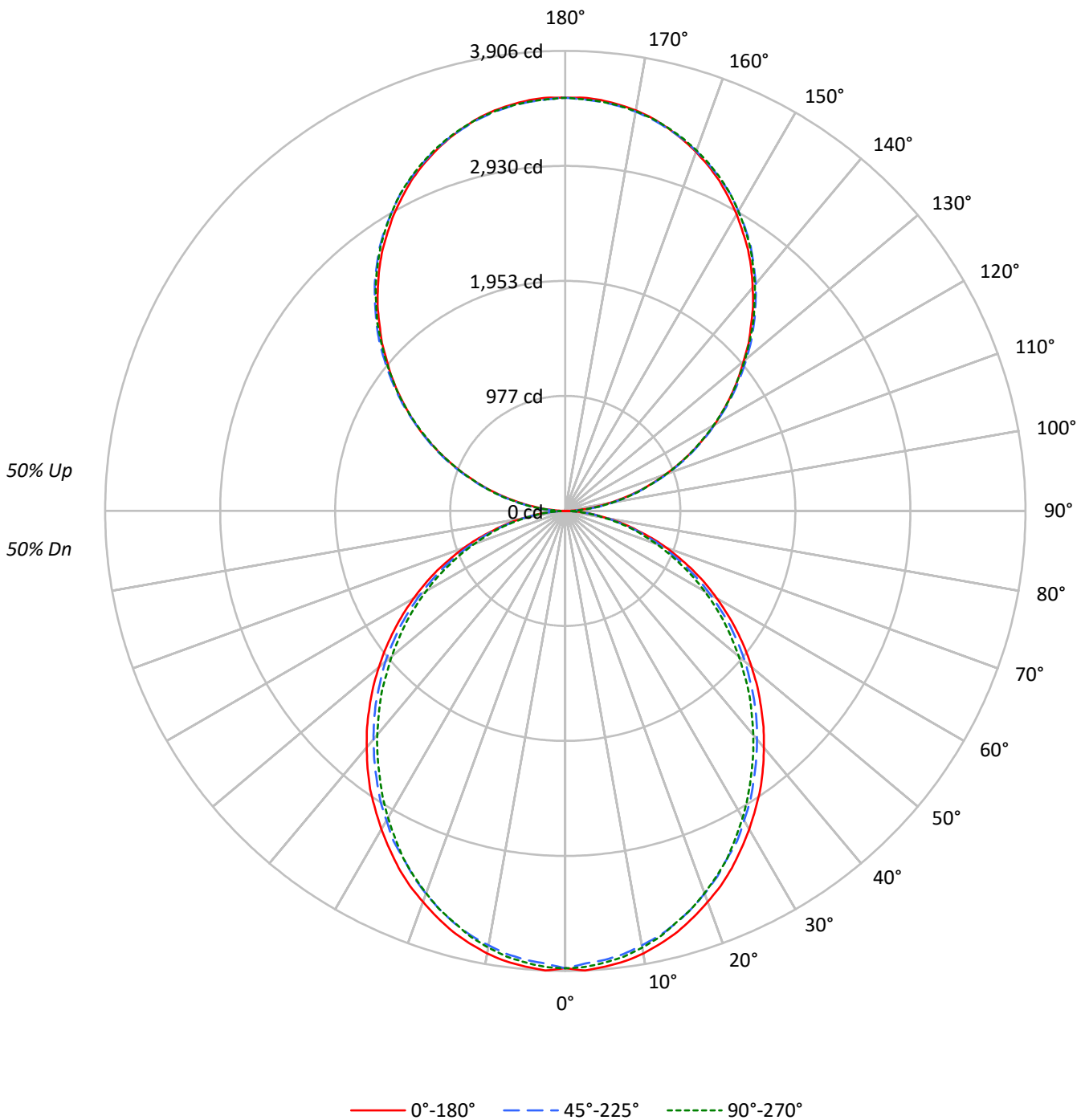
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19695.9 lumens
Efficiency: N/A
Efficacy: 120.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56				50
1	98	93	90	86	90	86	83	80	73	71	69	61	59	58	50	49	48				42
2	89	82	76	70	82	76	70	66	64	60	57	54	51	48	44	42	40				35
3	81	72	64	59	75	67	60	55	57	52	48	47	44	41	39	36	34				30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29				26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26				22
6	63	51	43	37	58	47	40	35	41	35	31	34	30	27	28	25	23				20
7	58	46	38	32	54	43	36	31	37	31	27	31	27	23	26	23	20				17
8	54	42	34	29	50	39	32	27	34	28	24	29	24	21	24	20	18				16
9	50	38	31	25	46	36	29	24	31	25	21	26	22	19	22	19	16				14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15				13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3085	3085	3085
5°	3090	3042	3063
10°	3065	3001	3021
15°	3020	2952	2956
20°	2959	2883	2890
25°	2899	2801	2813
30°	2823	2725	2715
35°	2751	2634	2612
40°	2662	2543	2514
45°	2574	2452	2413
50°	2478	2356	2297
55°	2377	2245	2190
60°	2262	2114	2067
65°	2138	1978	1923
70°	1979	1812	1767
75°	1759	1613	1623
80°	1495	1360	1349
85°	1081	923	894

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2735 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	1.9
10°-20°	1028.5	5.2
20°-30°	1511.4	7.7
30°-40°	1755.4	8.9
40°-50°	1753.3	8.9
50°-60°	1528.8	7.8
60°-70°	1130.1	5.7
70°-80°	639.4	3.2
80°-90°	178.7	0.9
90°-100°	217.0	1.1
100°-110°	689.6	3.5
110°-120°	1180.1	6.0
120°-130°	1552.0	7.9
130°-140°	1742.1	8.8
140°-150°	1708.3	8.7
150°-160°	1433.0	7.3
160°-170°	950.4	4.8
170°-180°	332.2	1.7
0°-30°	2905.4	14.8
0°-40°	4660.9	23.7
0°-60°	7942.9	40.3
0°-90°	9891.2	50.2
90°-120°	2086.7	10.6
90°-150°	7089.1	36.0
90°-180°	9805.0	49.8
0°-180°	19695.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	3	38	104	97	100	19
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1722	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2255	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3101	3111	3126	3116	1424
165°	3365	3361	3361	3383	3368	949
175°	3501	3493	3486	3507	3489	333
180°	3507	3507	3507	3507	3507	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	3.2	38.0	103.6	97.3	100.5
92.5°	65.5	88.8	92.0	95.2	95.2
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.1	529.8	532.9	529.8
105°	636.6	645.0	651.3	656.6	656.6
107.5°	771.9	784.6	784.6	786.7	771.9
110°	903.1	919.9	919.9	919.9	911.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.6	1059.5	1051.0	1044.7
115°	1184.3	1201.2	1195.9	1192.7	1184.3
117.5°	1322.8	1346.1	1331.2	1322.8	1314.3
120°	1462.3	1485.6	1462.3	1462.3	1452.9
122.5°	1589.2	1618.8	1604.1	1595.6	1589.2
125°	1722.5	1748.9	1740.5	1730.9	1727.8
127.5°	1852.6	1885.3	1873.7	1861.0	1852.6
130°	1974.1	2012.2	2007.0	2000.5	1989.0
132.5°	2110.5	2140.1	2142.3	2127.5	2119.0
135°	2227.9	2260.7	2267.0	2263.9	2255.4
137.5°	2359.1	2385.5	2390.8	2388.7	2375.9
140°	2474.3	2500.7	2515.5	2515.5	2503.9
142.5°	2592.7	2619.1	2627.6	2630.8	2619.1
145°	2704.7	2725.9	2742.9	2746.0	2734.4
147.5°	2805.2	2831.7	2844.4	2849.7	2838.0
150°	2908.9	2926.9	2938.5	2947.9	2938.5
152.5°	3000.8	3018.8	3033.7	3045.3	3033.7
155°	3092.9	3101.3	3110.9	3125.6	3116.1
157.5°	3172.2	3178.5	3183.8	3204.9	3190.1
160°	3243.0	3249.4	3252.5	3270.4	3257.8
162.5°	3308.6	3308.6	3311.7	3331.8	3317.0
165°	3364.6	3361.4	3361.4	3382.6	3367.8
167.5°	3415.4	3405.8	3405.8	3427.0	3412.2
170°	3453.4	3445.0	3441.8	3463.0	3445.0
172.5°	3479.8	3471.4	3468.2	3489.4	3471.4
175°	3501.0	3492.6	3486.3	3507.3	3489.4
177.5°	3512.6	3504.2	3497.8	3515.8	3497.8
180°	3507.3	3507.3	3507.3	3507.3	3507.3



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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	11.20	12.06	12.16	13.03	14.30	10.77	11.63	11.72	12.60	13.87
	3H	12.86	13.63	13.83	14.61	15.91	12.39	13.16	13.35	14.14	15.43
	4H	13.45	14.18	14.43	15.16	16.46	12.97	13.71	13.96	14.69	15.99
	6H	13.85	14.52	14.84	15.51	16.82	13.37	14.05	14.36	15.04	16.35
	8H	13.95	14.60	14.95	15.60	16.91	13.48	14.12	14.48	15.13	16.44
	12H	14.00	14.61	15.00	15.61	16.95	13.52	14.13	14.52	15.13	16.47
4H	2H	11.66	12.40	12.65	13.38	14.68	11.32	12.05	12.30	13.03	14.33
	3H	13.53	14.14	14.52	15.15	16.47	13.14	13.75	14.13	14.76	16.07
	4H	14.24	14.80	15.25	15.81	17.14	13.84	14.40	14.84	15.40	16.74
	6H	14.76	15.24	15.77	16.27	17.60	14.35	14.83	15.36	15.86	17.19
	8H	14.91	15.36	15.92	16.38	17.73	14.50	14.95	15.51	15.97	17.32
	12H	14.98	15.39	16.02	16.42	17.78	14.56	14.97	15.59	16.00	17.36
8H	4H	14.44	14.89	15.46	15.91	17.26	14.08	14.53	15.10	15.55	16.90
	6H	15.07	15.44	16.11	16.51	17.85	14.71	15.08	15.75	16.14	17.49
	8H	15.29	15.62	16.34	16.67	18.03	14.92	15.25	15.97	16.30	17.67
	12H	15.42	15.71	16.48	16.76	18.16	15.04	15.33	16.09	16.37	17.78
12H	4H	14.42	14.83	15.46	15.87	17.22	14.07	14.48	15.11	15.52	16.87
	6H	15.10	15.43	16.15	16.48	17.84	14.75	15.08	15.80	16.13	17.49
	8H	15.34	15.63	16.40	16.68	18.08	14.99	15.27	16.04	16.32	17.73