

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: P926677

Luminaire Tested: DFN2DIP-TR4F0-120D090US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926677
REPORT IS A COMBINATION OF REPORTS P901996 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D090US950-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

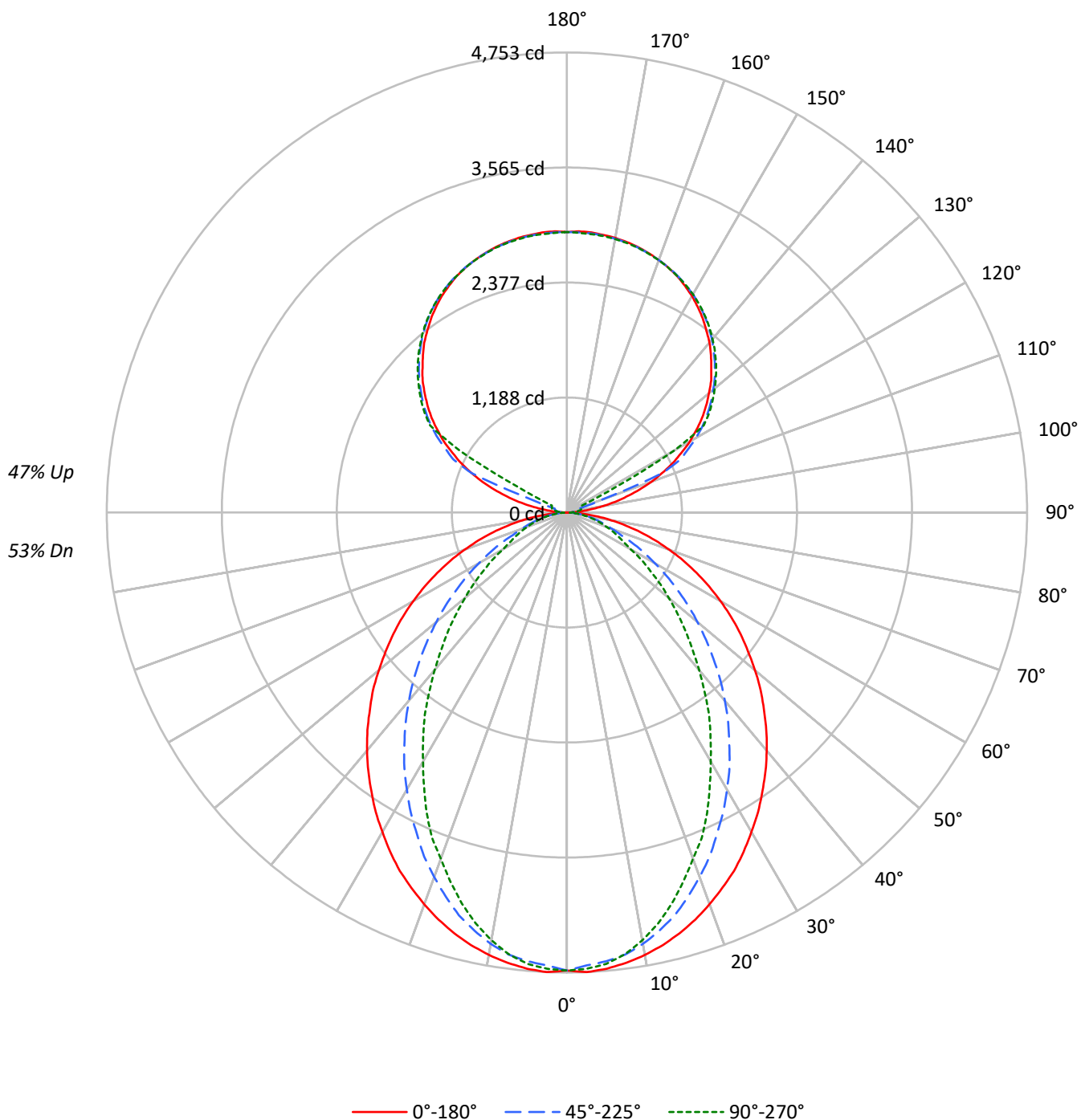
Lumens per Lamp: N/A
Luminaire Lumens: 18230.9 lumens
Efficiency: N/A
Efficacy: 94.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 193.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3759	3759	3759
5°	3765	3699	3723
10°	3728	3627	3601
15°	3676	3507	3414
20°	3609	3341	3184
25°	3539	3156	2962
30°	3446	2966	2681
35°	3354	2762	2433
40°	3261	2551	2150
45°	3153	2316	1893
50°	3041	2080	1642
55°	2925	1827	1401
60°	2790	1562	1153
65°	2634	1294	1038
70°	2446	1043	939
75°	2209	919	854
80°	1867	771	740
85°	1301	515	556

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3153 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.4	2.4
10°-20°	1217.3	6.7
20°-30°	1709.1	9.4
30°-40°	1863.0	10.2
40°-50°	1712.3	9.4
50°-60°	1344.7	7.4
60°-70°	875.3	4.8
70°-80°	450.6	2.5
80°-90°	120.1	0.7
90°-100°	95.6	0.5
100°-110°	356.2	2.0
110°-120°	944.7	5.2
120°-130°	1566.8	8.6
130°-140°	1664.3	9.1
140°-150°	1546.8	8.5
150°-160°	1243.6	6.8
160°-170°	801.3	4.4
170°-180°	275.8	1.5
0°-30°	3369.8	18.5
0°-40°	5232.8	28.7
0°-60°	8289.9	45.5
0°-90°	9735.9	53.4
90°-120°	1396.4	7.7
90°-150°	6174.3	33.9
90°-180°	8495.0	46.6
0°-180°	18230.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4732	4732	4732	4732	4732	
5°	4732	4710	4654	4693	4680	449
15°	4500	4453	4308	4226	4184	1268
25°	4085	3948	3665	3490	3425	1879
35°	3520	3301	2925	2655	2560	2203
45°	2878	2590	2141	1837	1734	2222
55°	2188	1854	1392	1135	1054	1955
65°	1477	1130	745	600	586	1465
75°	788	488	343	312	308	833
85°	184	94	81	81	81	211
90°	2	25	42	53	56	17
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4731.5	4731.5	4731.5	4731.5	4731.5
2.5°	4752.8	4731.5	4684.2	4727.4	4718.7
5°	4731.5	4710.1	4654.2	4692.8	4680.1
7.5°	4692.8	4667.3	4607.4	4624.2	4602.9
10°	4641.5	4611.5	4526.1	4512.9	4487.5
12.5°	4577.4	4538.8	4422.9	4397.6	4350.3
15°	4500.2	4453.0	4307.6	4226.2	4183.6
17.5°	4410.2	4341.7	4161.7	4067.8	3999.2
20°	4307.6	4221.7	4007.8	3901.0	3806.5
22.5°	4196.3	4097.7	3849.2	3703.8	3639.8
25°	4085.0	3947.7	3665.2	3489.8	3425.3
27.5°	3952.3	3806.5	3493.9	3292.7	3194.1
30°	3811.0	3648.0	3305.4	3087.3	2971.5
32.5°	3673.9	3476.7	3126.0	2868.9	2761.6
35°	3519.9	3301.3	2924.7	2654.9	2560.3
37.5°	3369.9	3134.2	2736.2	2440.4	2333.7
40°	3211.4	2954.7	2539.1	2235.1	2123.8
42.5°	3048.7	2774.8	2342.4	2025.2	1918.5
45°	2877.5	2590.4	2141.1	1836.7	1734.0
47.5°	2714.8	2410.9	1948.4	1644.1	1550.1
50°	2535.0	2231.0	1759.9	1464.2	1374.7
52.5°	2359.1	2037.9	1580.0	1297.4	1216.2
55°	2187.9	1854.0	1391.5	1134.8	1053.5
57.5°	2012.5	1670.0	1224.7	984.9	916.3
60°	1832.6	1490.1	1048.9	830.9	762.3
62.5°	1657.3	1314.7	899.0	693.7	659.6
65°	1477.4	1130.3	745.1	599.7	586.5
67.5°	1306.1	959.0	599.7	526.5	513.8
70°	1126.2	792.3	496.6	453.8	436.6
72.5°	955.0	637.8	415.2	381.1	372.5
75°	787.7	487.9	342.6	312.5	308.4
77.5°	621.1	346.6	269.9	252.6	243.9
80°	466.6	248.5	205.3	188.5	188.5
82.5°	325.3	167.1	141.3	132.6	132.6
85°	184.0	94.1	81.3	81.3	81.3
87.5°	68.6	34.1	34.1	30.0	30.0
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7

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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	12.05	12.91	12.99	13.86	15.09	8.03	8.89	8.96	9.83	11.06
	3H	13.73	14.50	14.68	15.46	16.71	9.22	9.99	10.17	10.94	12.19
	4H	14.34	15.07	15.30	16.03	17.29	9.67	10.40	10.63	11.36	12.62
	6H	14.77	15.43	15.74	16.40	17.67	10.00	10.66	10.97	11.63	12.90
	8H	14.89	15.53	15.87	16.51	17.78	10.09	10.72	11.07	11.71	12.97
	12H	14.96	15.56	15.94	16.54	17.83	10.13	10.74	11.12	11.71	13.00
4H	2H	12.08	12.80	13.04	13.76	15.02	8.63	9.35	9.59	10.31	11.57
	3H	13.91	14.51	14.88	15.50	16.77	9.98	10.58	10.96	11.57	12.85
	4H	14.60	15.15	15.59	16.14	17.43	10.53	11.08	11.51	12.06	13.36
	6H	15.12	15.59	16.11	16.60	17.89	10.95	11.43	11.95	12.43	13.73
	8H	15.29	15.74	16.29	16.74	18.04	11.08	11.52	12.08	12.52	13.83
	12H	15.39	15.79	16.41	16.81	18.12	11.15	11.55	12.17	12.56	13.88
8H	4H	14.57	15.01	15.57	16.01	17.32	10.81	11.25	11.81	12.26	13.56
	6H	15.14	15.50	16.16	16.55	17.85	11.33	11.70	12.36	12.74	14.05
	8H	15.36	15.68	16.39	16.71	18.03	11.53	11.85	12.56	12.88	14.20
	12H	15.50	15.78	16.53	16.80	18.17	11.65	11.93	12.68	12.95	14.32
12H	4H	14.53	14.92	15.54	15.94	17.25	10.82	11.22	11.83	12.23	13.55
	6H	15.11	15.44	16.14	16.47	17.79	11.38	11.70	12.41	12.73	14.06
	8H	15.34	15.62	16.37	16.64	18.01	11.60	11.88	12.63	12.90	14.27