

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: P911574

Luminaire Tested: DFN2DIP-PN4F0-100D110US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911574
REPORT IS A COMBINATION OF REPORTS P899748 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D110US850-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

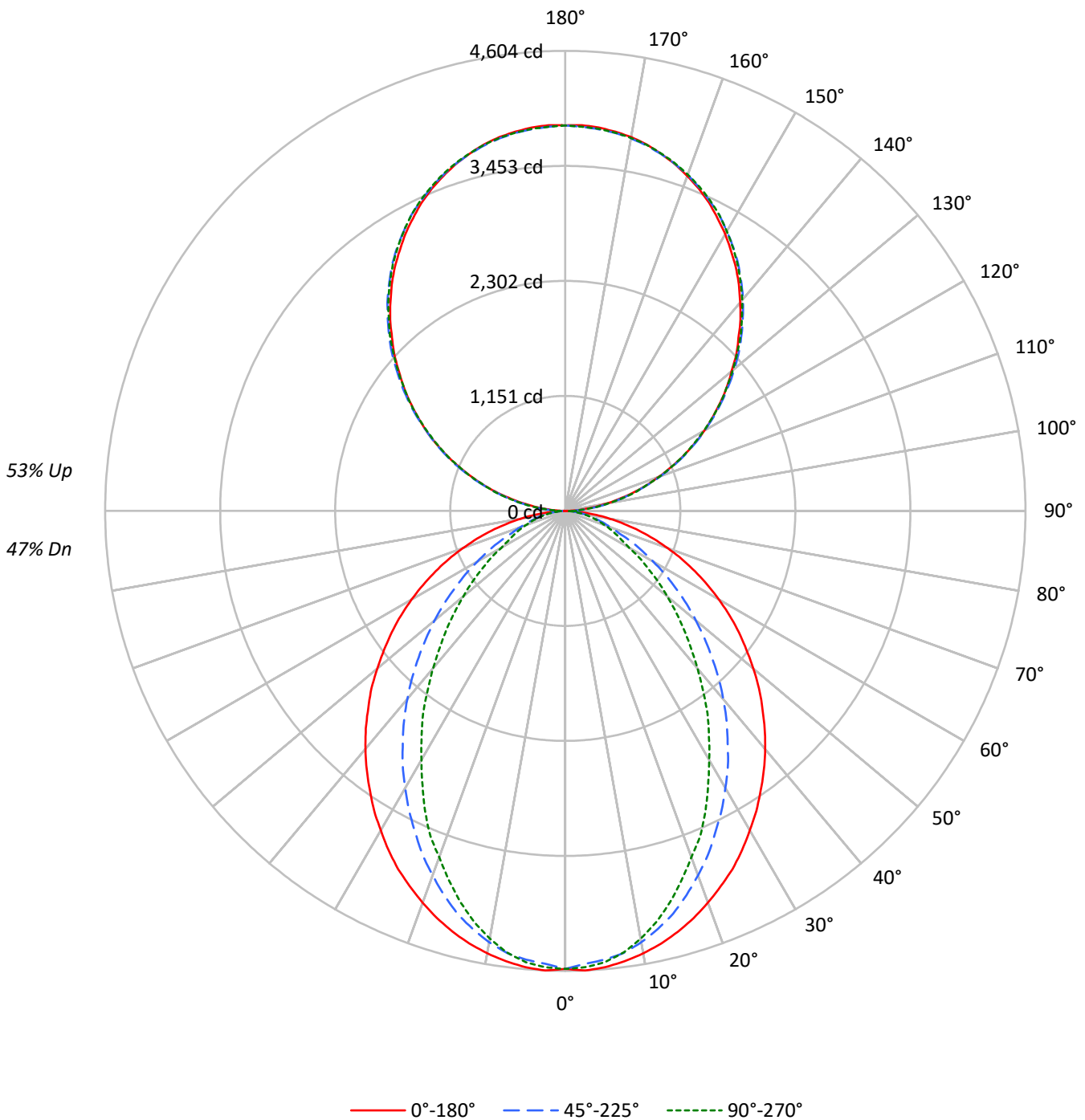
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20222.6 lumens
Efficiency: N/A
Efficacy: 105.0 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: General Diffuse

Input Watts (W): 192.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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				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	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53	47				47
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	48	47	46	40				40
2	89	82	76	71	82	76	71	66	64	60	57	53	50	48	42	41	39	34				34
3	82	72	65	60	75	67	61	56	57	52	48	47	44	41	38	36	34	30				30
4	75	64	57	51	69	60	53	48	51	46	42	42	38	35	34	32	30	26				26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23				23
6	64	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20				20
7	59	47	39	34	54	44	37	32	37	32	28	32	27	24	26	23	21	18				18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16				16
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17	15				15
10	48	36	29	24	44	34	27	23	29	24	20	25	21	18	21	18	16	14				14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3346	3346	3346
5°	3351	3293	3314
10°	3318	3229	3207
15°	3272	3123	3041
20°	3212	2976	2837
25°	3150	2811	2640
30°	3067	2643	2389
35°	2985	2461	2170
40°	2903	2274	1918
45°	2806	2065	1689
50°	2707	1855	1466
55°	2603	1630	1251
60°	2483	1395	1030
65°	2344	1155	928
70°	2176	932	841
75°	1966	823	766
80°	1660	692	667
85°	1157	464	505

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 3021 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	2.1
10°-20°	1179.3	5.8
20°-30°	1655.6	8.2
30°-40°	1804.7	8.9
40°-50°	1658.8	8.2
50°-60°	1302.7	6.4
60°-70°	847.9	4.2
70°-80°	436.5	2.2
80°-90°	122.4	0.6
90°-100°	238.7	1.2
100°-110°	758.6	3.8
110°-120°	1298.1	6.4
120°-130°	1707.2	8.4
130°-140°	1916.3	9.5
140°-150°	1879.1	9.3
150°-160°	1576.3	7.8
160°-170°	1045.4	5.2
170°-180°	365.4	1.8
0°-30°	3264.5	16.1
0°-40°	5069.2	25.1
0°-60°	8030.6	39.7
0°-90°	9437.4	46.7
90°-120°	2295.4	11.4
90°-150°	7798.0	38.6
90°-180°	10785.0	53.3
0°-180°	20222.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	3	42	114	107	110	20
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1



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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	11.03	11.83	12.02	12.83	14.15	6.99	7.80	7.99	8.80	10.12
	3H	12.71	13.43	13.71	14.43	15.78	8.18	8.90	9.18	9.91	11.25
	4H	13.32	14.00	14.33	15.01	16.36	8.63	9.31	9.65	10.32	11.67
	6H	13.74	14.36	14.76	15.38	16.74	8.95	9.58	9.98	10.59	11.95
	8H	13.87	14.46	14.90	15.49	16.85	9.04	9.64	10.07	10.67	12.03
	12H	13.93	14.49	14.96	15.52	16.90	9.08	9.65	10.12	10.68	12.06
4H	2H	11.04	11.72	12.06	12.73	14.08	7.59	8.27	8.61	9.28	10.63
	3H	12.87	13.44	13.90	14.48	15.84	8.94	9.50	9.97	10.54	11.90
	4H	13.57	14.08	14.60	15.12	16.50	9.48	10.00	10.52	11.03	12.42
	6H	14.08	14.53	15.13	15.58	16.96	9.90	10.35	10.95	11.40	12.78
	8H	14.26	14.67	15.31	15.72	17.12	10.03	10.45	11.08	11.49	12.89
	12H	14.36	14.73	15.42	15.79	17.19	10.10	10.47	11.16	11.53	12.93
8H	4H	13.53	13.95	14.58	14.99	16.39	9.76	10.18	10.81	11.23	12.62
	6H	14.10	14.44	15.17	15.53	16.93	10.28	10.62	11.35	11.71	13.11
	8H	14.32	14.62	15.40	15.69	17.11	10.47	10.77	11.55	11.85	13.26
	12H	14.46	14.72	15.54	15.79	17.25	10.59	10.86	11.67	11.93	13.38
12H	4H	13.48	13.86	14.55	14.92	16.32	9.77	10.14	10.83	11.20	12.61
	6H	14.08	14.38	15.15	15.45	16.86	10.33	10.63	11.41	11.71	13.12
	8H	14.30	14.56	15.38	15.63	17.09	10.54	10.81	11.62	11.88	13.33