

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: P903354

Luminaire Tested: DFN2DIP-PN4F0-090D110US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903354
REPORT IS A COMBINATION OF REPORTS P899746 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D110US830-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

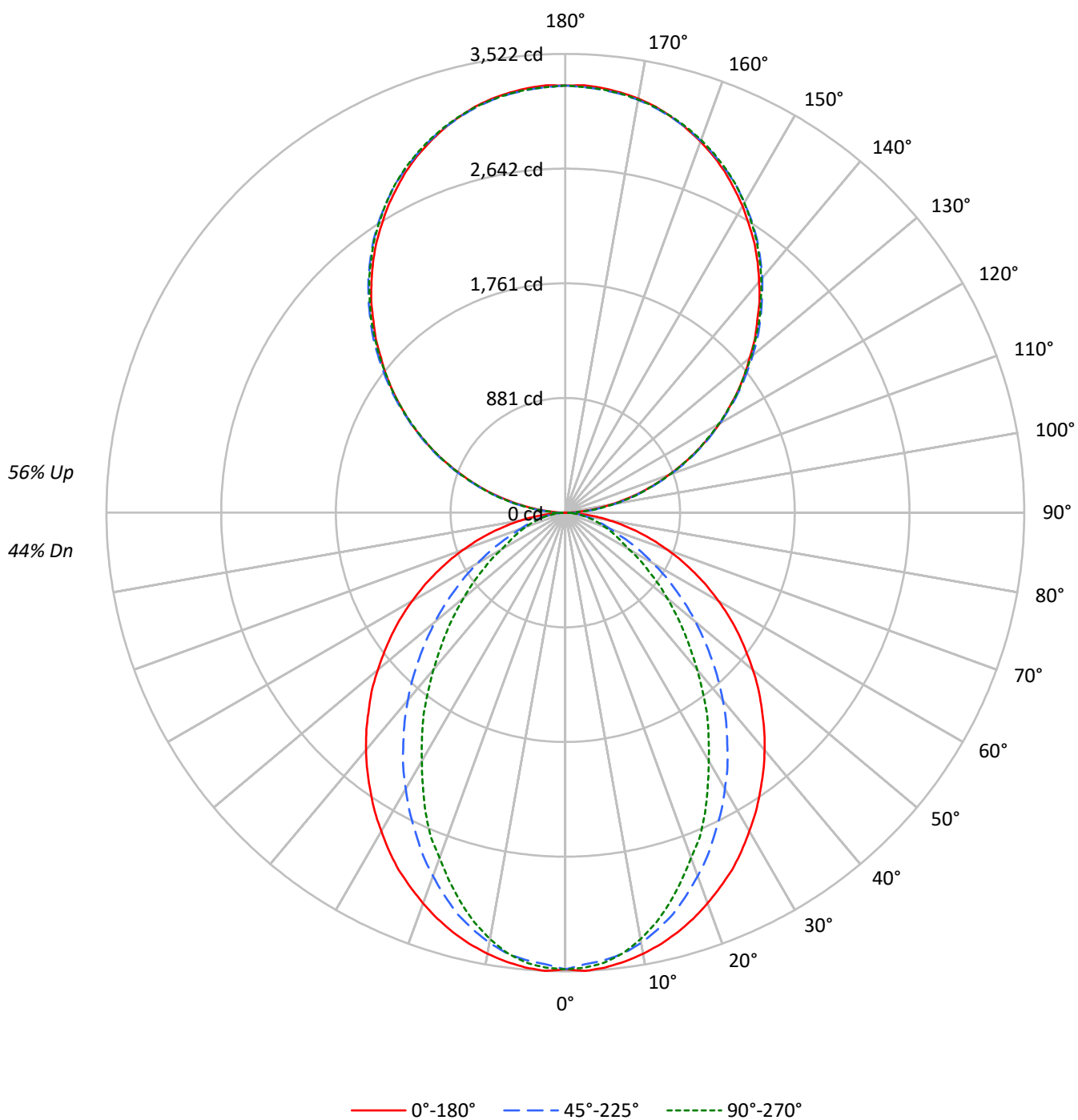
Lumens per Lamp: N/A
Luminaire Lumens: 16386.1 lumens
Efficiency: N/A
Efficacy: 91.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180
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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44		
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44	38		
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37	32		
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28		
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28	24		
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25	21		
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22	19		
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20	17		
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15		
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14		
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2559	2559	2559
5°	2563	2519	2535
10°	2538	2470	2453
15°	2503	2389	2326
20°	2457	2276	2170
25°	2409	2150	2019
30°	2346	2021	1828
35°	2284	1883	1660
40°	2220	1739	1467
45°	2147	1580	1292
50°	2070	1419	1121
55°	1991	1247	957
60°	1899	1067	788
65°	1793	884	710
70°	1665	713	643
75°	1504	629	586
80°	1270	529	510
85°	885	355	386

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2567 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	328.6	2.0
10°-20°	902.0	5.5
20°-30°	1266.4	7.7
30°-40°	1380.5	8.4
40°-50°	1268.8	7.7
50°-60°	996.5	6.1
60°-70°	648.6	4.0
70°-80°	333.9	2.0
80°-90°	94.6	0.6
90°-100°	202.9	1.2
100°-110°	644.7	3.9
110°-120°	1103.3	6.7
120°-130°	1451.0	8.9
130°-140°	1628.6	9.9
140°-150°	1597.1	9.7
150°-160°	1339.7	8.2
160°-170°	888.5	5.4
170°-180°	310.5	1.9
0°-30°	2497.0	15.2
0°-40°	3877.5	23.7
0°-60°	6142.8	37.5
0°-90°	7219.8	44.1
90°-120°	1950.9	11.9
90°-150°	6627.6	40.4
90°-180°	9166.0	55.9
0°-180°	16386.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3506	3506	3506	3506	3506	
5°	3506	3490	3449	3477	3468	332
15°	3335	3300	3192	3132	3100	940
25°	3027	2925	2716	2586	2538	1392
35°	2608	2446	2167	1967	1897	1632
45°	2132	1920	1586	1361	1285	1647
55°	1621	1374	1031	841	781	1449
65°	1095	838	552	444	435	1085
75°	584	362	254	232	229	617
85°	136	70	60	60	60	156
90°	3	36	97	91	94	16
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3506.0	3506.0	3506.0	3506.0	3506.0
2.5°	3521.8	3506.0	3470.9	3503.0	3496.5
5°	3506.0	3490.1	3448.8	3477.3	3467.9
7.5°	3477.3	3458.5	3414.1	3426.5	3410.7
10°	3439.3	3417.1	3353.8	3344.0	3325.2
12.5°	3391.8	3363.3	3277.4	3258.6	3223.5
15°	3334.6	3299.7	3191.9	3131.6	3100.0
17.5°	3268.0	3217.2	3083.8	3014.2	2963.4
20°	3191.9	3128.3	2969.7	2890.6	2820.6
22.5°	3109.4	3036.4	2852.2	2744.5	2697.1
25°	3027.0	2925.3	2715.9	2586.0	2538.2
27.5°	2928.7	2820.6	2589.0	2439.9	2366.8
30°	2824.0	2703.1	2449.3	2287.7	2201.9
32.5°	2722.3	2576.2	2316.3	2125.8	2046.4
35°	2608.2	2446.3	2167.2	1967.3	1897.2
37.5°	2497.1	2322.4	2027.5	1808.4	1729.3
40°	2379.6	2189.4	1881.4	1656.2	1573.8
42.5°	2259.1	2056.2	1735.6	1500.7	1421.5
45°	2132.2	1919.5	1586.5	1360.9	1284.9
47.5°	2011.7	1786.5	1443.8	1218.2	1148.6
50°	1878.4	1653.1	1304.1	1085.0	1018.6
52.5°	1748.1	1510.1	1170.8	961.4	901.2
55°	1621.2	1373.8	1031.0	840.9	780.6
57.5°	1491.3	1237.5	907.6	729.8	679.0
60°	1357.9	1104.1	777.3	615.7	564.9
62.5°	1228.0	974.2	666.2	514.1	488.8
65°	1094.7	837.5	552.0	444.3	434.6
67.5°	967.8	710.6	444.3	390.1	380.7
70°	834.5	587.1	368.0	336.3	323.5
72.5°	707.6	472.6	307.6	282.4	276.1
75°	583.7	361.6	253.8	231.6	228.6
77.5°	460.1	256.8	199.9	187.2	180.8
80°	345.7	184.2	152.1	139.7	139.7
82.5°	241.0	123.9	104.7	98.3	98.3
85°	136.3	69.7	60.2	60.2	60.2
87.5°	50.8	25.3	25.3	22.2	22.2
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0

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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	9.84	10.62	10.85	11.64	12.99	5.80	6.58	6.81	7.60	8.96
	3H	11.51	12.21	12.54	13.24	14.62	6.99	7.69	8.01	8.71	10.09
	4H	12.12	12.78	13.16	13.81	15.20	7.44	8.10	8.47	9.13	10.51
	6H	12.54	13.15	13.59	14.19	15.58	7.75	8.37	8.80	9.40	10.80
	8H	12.67	13.25	13.72	14.30	15.69	7.84	8.43	8.90	9.48	10.87
	12H	12.73	13.28	13.79	14.33	15.74	7.89	8.44	8.94	9.48	10.90
4H	2H	9.85	10.51	10.89	11.54	12.93	6.39	7.06	7.43	8.09	9.47
	3H	11.68	12.23	12.73	13.29	14.68	7.74	8.29	8.79	9.35	10.75
	4H	12.37	12.87	13.43	13.92	15.34	8.29	8.79	9.34	9.84	11.26
	6H	12.88	13.32	13.95	14.39	15.81	8.70	9.14	9.77	10.21	11.62
	8H	13.06	13.47	14.13	14.53	15.96	8.83	9.24	9.90	10.30	11.73
	12H	13.16	13.52	14.24	14.60	16.03	8.90	9.26	9.98	10.34	11.77
8H	4H	12.33	12.74	13.40	13.80	15.23	8.56	8.97	9.63	10.03	11.46
	6H	12.90	13.23	13.99	14.34	15.77	9.08	9.42	10.17	10.52	11.95
	8H	13.12	13.41	14.22	14.50	15.95	9.27	9.57	10.37	10.66	12.10
	12H	13.26	13.52	14.36	14.60	16.09	9.39	9.65	10.49	10.73	12.22
12H	4H	12.28	12.65	13.37	13.73	15.16	8.57	8.93	9.65	10.01	11.45
	6H	12.88	13.17	13.97	14.26	15.71	9.13	9.43	10.23	10.52	11.96
	8H	13.10	13.35	14.20	14.44	15.93	9.34	9.60	10.44	10.68	12.17

END OF REPORT