

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: P925191

Luminaire Tested: DFN2DIP-PN4F0-100D050US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925191
REPORT IS A COMBINATION OF REPORTS P901160 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D050US950-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

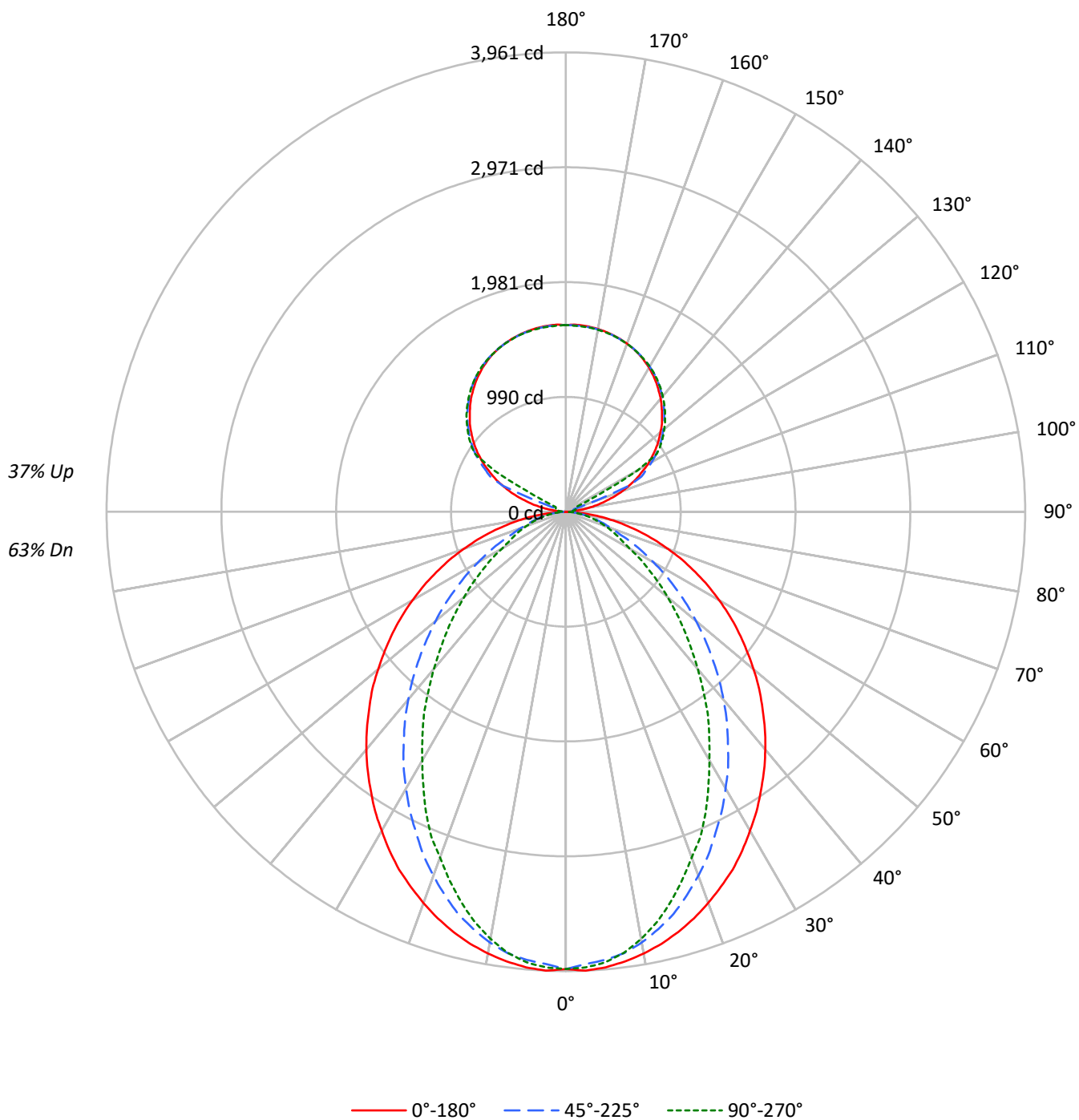
Lumens per Lamp: N/A
Luminaire Lumens: 12831.3 lumens
Efficiency: N/A
Efficacy: 92.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 138.6
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
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2878	2878	2878
5°	2883	2833	2851
10°	2854	2778	2759
15°	2815	2686	2616
20°	2763	2560	2440
25°	2710	2418	2271
30°	2638	2273	2056
35°	2568	2117	1866
40°	2497	1956	1650
45°	2414	1777	1453
50°	2328	1595	1261
55°	2239	1402	1076
60°	2136	1200	886
65°	2017	994	798
70°	1872	802	724
75°	1691	708	659
80°	1429	595	574
85°	995	399	434

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2414 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.5	2.9
10°-20°	1014.4	7.9
20°-30°	1424.2	11.1
30°-40°	1552.5	12.1
40°-50°	1426.9	11.1
50°-60°	1120.6	8.7
60°-70°	729.4	5.7
70°-80°	375.5	2.9
80°-90°	98.7	0.8
90°-100°	53.1	0.4
100°-110°	197.9	1.5
110°-120°	524.8	4.1
120°-130°	870.4	6.8
130°-140°	924.6	7.2
140°-150°	859.3	6.7
150°-160°	690.9	5.4
160°-170°	445.2	3.5
170°-180°	153.2	1.2
0°-30°	2808.2	21.9
0°-40°	4360.7	34.0
0°-60°	6908.2	53.8
0°-90°	8111.8	63.2
90°-120°	775.8	6.0
90°-150°	3430.2	26.7
90°-180°	4719.0	36.8
0°-180°	12831.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3943	3943	3943	3943	3943	
5°	3943	3925	3878	3911	3900	374
15°	3750	3711	3590	3522	3486	1057
25°	3404	3290	3054	2908	2854	1566
35°	2933	2751	2437	2212	2134	1836
45°	2398	2159	1784	1531	1445	1852
55°	1823	1545	1160	946	878	1629
65°	1231	942	621	500	489	1221
75°	656	407	285	260	257	694
85°	153	78	68	68	68	176
90°	1	14	23	29	31	12
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3942.9	3942.9	3942.9	3942.9	3942.9
2.5°	3960.6	3942.9	3903.5	3939.4	3932.3
5°	3942.9	3925.0	3878.5	3910.7	3900.0
7.5°	3910.7	3889.5	3839.5	3853.5	3835.7
10°	3867.9	3842.9	3771.7	3760.8	3739.6
12.5°	3814.6	3782.3	3685.8	3664.6	3625.2
15°	3750.2	3710.8	3589.6	3521.9	3486.3
17.5°	3675.2	3618.0	3468.2	3389.8	3332.6
20°	3589.6	3518.1	3339.8	3250.9	3172.0
22.5°	3496.9	3414.7	3207.6	3086.6	3033.1
25°	3404.2	3289.9	3054.3	2908.2	2854.5
27.5°	3293.6	3172.0	2911.6	2743.9	2661.8
30°	3175.9	3039.9	2754.5	2572.8	2476.3
32.5°	3061.6	2897.2	2605.0	2390.7	2301.3
35°	2933.2	2751.1	2437.3	2212.4	2133.6
37.5°	2808.3	2611.8	2280.2	2033.7	1944.7
40°	2676.2	2462.3	2115.9	1862.6	1769.9
42.5°	2540.6	2312.3	1952.0	1687.7	1598.7
45°	2397.9	2158.6	1784.3	1530.6	1445.0
47.5°	2262.4	2009.1	1623.7	1370.0	1291.7
50°	2112.4	1859.2	1466.6	1220.2	1145.6
52.5°	1965.9	1698.3	1316.7	1081.2	1013.4
55°	1823.2	1545.0	1159.6	945.7	877.9
57.5°	1677.1	1391.6	1020.7	820.7	763.6
60°	1527.2	1241.7	874.2	692.4	635.3
62.5°	1381.0	1095.6	749.2	578.1	549.7
65°	1231.1	941.9	620.9	499.7	488.7
67.5°	1088.4	799.2	499.7	438.7	428.2
70°	938.4	660.3	413.7	378.2	363.9
72.5°	795.7	531.5	346.0	317.6	310.4
75°	656.4	406.6	285.4	260.4	257.0
77.5°	517.5	288.9	224.9	210.5	203.3
80°	388.8	207.1	171.1	157.1	157.1
82.5°	271.0	139.3	117.7	110.6	110.6
85°	153.3	78.3	67.7	67.7	67.7
87.5°	57.1	28.4	28.4	25.0	25.0
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8

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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	11.98	12.93	12.82	13.79	14.86	7.94	8.90	8.79	9.75	10.83
	3H	13.67	14.52	14.52	15.39	16.49	9.14	9.99	10.00	10.86	11.96
	4H	14.28	15.09	15.16	15.96	17.07	9.60	10.40	10.47	11.28	12.39
	6H	14.72	15.45	15.60	16.34	17.46	9.93	10.67	10.81	11.55	12.67
	8H	14.85	15.55	15.74	16.45	17.57	10.02	10.72	10.91	11.62	12.75
	12H	14.91	15.58	15.81	16.48	17.62	10.07	10.74	10.97	11.63	12.78
4H	2H	12.01	12.81	12.89	13.69	14.80	8.56	9.36	9.43	10.23	11.34
	3H	13.86	14.52	14.74	15.43	16.55	9.92	10.58	10.80	11.49	12.62
	4H	14.55	15.16	15.45	16.06	17.22	10.47	11.08	11.37	11.98	13.13
	6H	15.08	15.60	15.99	16.53	17.68	10.90	11.42	11.81	12.35	13.50
	8H	15.26	15.75	16.17	16.67	17.83	11.03	11.52	11.95	12.44	13.61
	12H	15.36	15.80	16.29	16.74	17.91	11.10	11.54	12.04	12.48	13.65
8H	4H	14.53	15.02	15.45	15.94	17.11	10.76	11.25	11.68	12.17	13.34
	6H	15.11	15.51	16.05	16.47	17.64	11.29	11.69	12.23	12.65	13.82
	8H	15.32	15.68	16.28	16.64	17.82	11.48	11.84	12.43	12.79	13.97
	12H	15.47	15.78	16.42	16.73	17.96	11.60	11.92	12.56	12.86	14.10
12H	4H	14.49	14.93	15.42	15.87	17.04	10.77	11.21	11.71	12.15	13.32
	6H	15.08	15.44	16.03	16.39	17.58	11.34	11.69	12.29	12.65	13.83
	8H	15.31	15.62	16.26	16.57	17.80	11.55	11.87	12.51	12.81	14.05