

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: P926589

Luminaire Tested: DFN2DIP-TR4F0-100D050US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926589
REPORT IS A COMBINATION OF REPORTS P901920 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D050US950-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

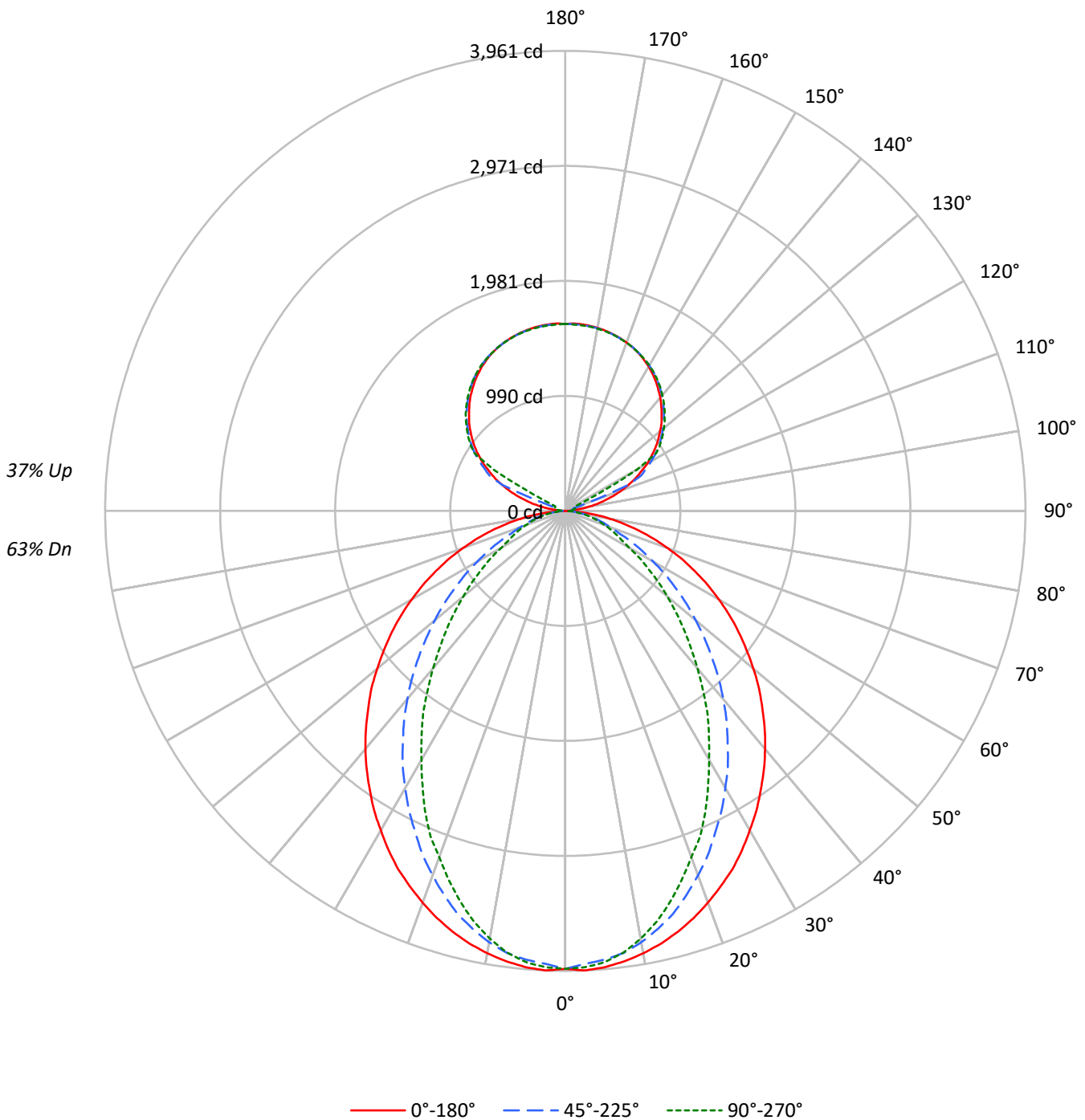
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12831.3 lumens
Efficiency: N/A
Efficacy: 92.4 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: Semi-Direct

Input Watts (W): 138.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	68	68	68	63
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59	61	60	59	54
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51	55	52	51	47
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44	49	46	44	40
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38	44	41	38	35
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34	40	37	34	31
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30	37	33	30	27
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27	34	30	27	25
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24	31	27	24	22
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22	29	25	22	20
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20	27	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3132	3132	3132
5°	3137	3083	3102
10°	3106	3022	3001
15°	3064	2922	2845
20°	3007	2784	2653
25°	2949	2630	2469
30°	2871	2472	2234
35°	2795	2302	2028
40°	2718	2126	1792
45°	2628	1930	1577
50°	2534	1733	1368
55°	2437	1522	1167
60°	2325	1302	961
65°	2195	1078	865
70°	2038	869	782
75°	1841	766	711
80°	1556	642	617
85°	1084	428	463

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2628 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	12.26	13.21	13.10	14.07	15.14	8.23	9.19	9.08	10.04	11.12
	3H	13.95	14.80	14.80	15.67	16.77	9.43	10.28	10.29	11.15	12.25
	4H	14.56	15.36	15.43	16.24	17.35	9.89	10.69	10.76	11.57	12.68
	6H	14.99	15.73	15.87	16.61	17.73	10.22	10.96	11.10	11.84	12.96
	8H	15.12	15.82	16.01	16.72	17.84	10.31	11.02	11.20	11.92	13.04
	12H	15.18	15.85	16.08	16.75	17.89	10.36	11.03	11.26	11.92	13.07
4H	2H	12.29	13.10	13.17	13.97	15.08	8.84	9.65	9.72	10.52	11.63
	3H	14.13	14.80	15.02	15.71	16.83	10.21	10.87	11.09	11.78	12.91
	4H	14.83	15.44	15.73	16.34	17.49	10.76	11.37	11.66	12.27	13.42
	6H	15.35	15.87	16.27	16.80	17.96	11.19	11.71	12.10	12.64	13.79
	8H	15.53	16.02	16.45	16.94	18.11	11.32	11.81	12.23	12.73	13.89
	12H	15.63	16.07	16.56	17.01	18.18	11.39	11.83	12.32	12.77	13.94
8H	4H	14.81	15.30	15.72	16.22	17.38	11.05	11.54	11.96	12.46	13.62
	6H	15.38	15.78	16.32	16.74	17.91	11.57	11.98	12.51	12.94	14.11
	8H	15.60	15.95	16.55	16.91	18.09	11.77	12.12	12.72	13.08	14.26
	12H	15.74	16.05	16.69	17.00	18.23	11.89	12.20	12.84	13.15	14.38
12H	4H	14.77	15.20	15.70	16.14	17.32	11.06	11.50	11.99	12.44	13.61
	6H	15.35	15.71	16.31	16.67	17.85	11.62	11.98	12.57	12.93	14.12
	8H	15.58	15.89	16.53	16.84	18.07	11.84	12.15	12.79	13.10	14.33