

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: P921501

Luminaire Tested: DFN2DIP-4P4F0-080D050US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921501
REPORT IS A COMBINATION OF REPORTS P900634 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D050US940-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

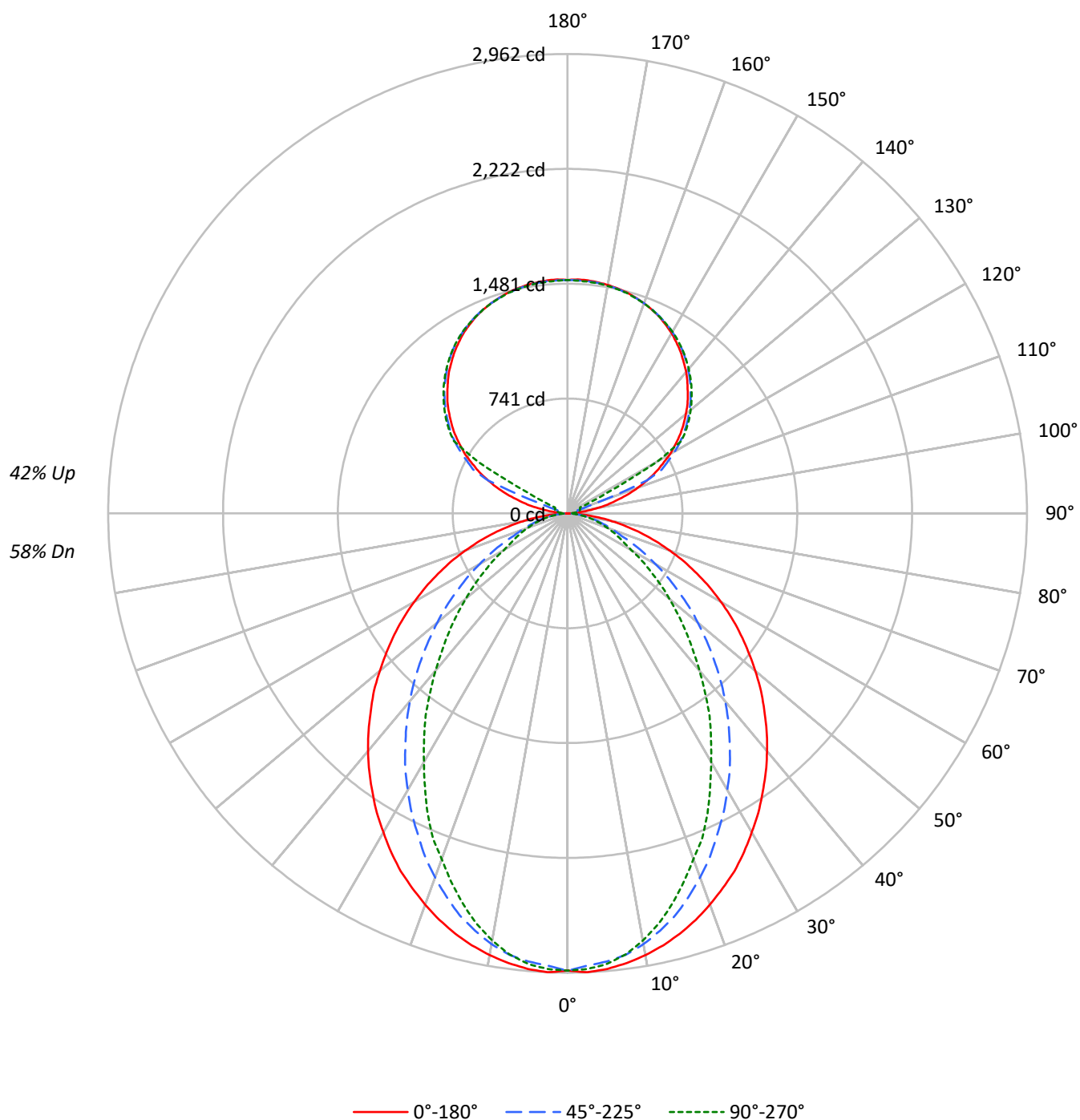
Lumens per Lamp: N/A
Luminaire Lumens: 10477.6 lumens
Efficiency: N/A
Efficacy: 83.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 126
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63
1	100	96	92	89	93	90	86	83	78	75	73	67	65	64	57	56	55
2	92	84	79	74	85	79	74	69	69	65	62	59	57	54	51	49	47
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	43	41
4	77	67	59	53	72	62	56	50	55	49	45	48	44	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	35	31	34	31	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	28	25
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	23
9	53	41	33	28	49	39	32	27	34	29	25	30	26	23	27	23	20
10	49	38	30	26	46	36	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1913	1913	1913
5°	1916	1883	1895
10°	1897	1847	1834
15°	1871	1786	1739
20°	1837	1703	1623
25°	1801	1609	1511
30°	1754	1513	1368
35°	1708	1409	1242
40°	1661	1302	1098
45°	1606	1183	968
50°	1549	1063	840
55°	1490	934	717
60°	1421	800	591
65°	1342	663	533
70°	1247	536	484
75°	1127	474	442
80°	953	400	385
85°	667	270	294

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1606 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.3	2.6
10°-20°	758.6	7.2
20°-30°	1065.0	10.2
30°-40°	1160.9	11.1
40°-50°	1067.0	10.2
50°-60°	838.0	8.0
60°-70°	545.4	5.2
70°-80°	280.8	2.7
80°-90°	74.3	0.7
90°-100°	49.6	0.5
100°-110°	185.0	1.8
110°-120°	490.6	4.7
120°-130°	813.6	7.8
130°-140°	864.3	8.2
140°-150°	803.2	7.7
150°-160°	645.8	6.2
160°-170°	416.1	4.0
170°-180°	143.2	1.4
0°-30°	2099.9	20.0
0°-40°	3260.8	31.1
0°-60°	5165.8	49.3
0°-90°	6066.3	57.9
90°-120°	725.2	6.9
90°-150°	3206.2	30.6
90°-180°	4411.0	42.1
0°-180°	10477.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	1	13	22	27	29	10
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	644	672	168	89	616
125°	885	899	920	928	931	789
135°	1095	1113	1122	1134	1131	846
145°	1271	1270	1288	1296	1290	795
155°	1399	1389	1402	1409	1400	645
165°	1474	1468	1471	1478	1471	416
175°	1508	1500	1502	1510	1499	144
180°	1505	1505	1505	1505	1505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.4	48.0	46.8
97.5°	127.3	38.2	55.5	58.9	59.8
100°	192.8	43.6	62.1	70.7	72.9
102.5°	264.6	262.4	64.3	76.2	79.5
105°	331.0	363.7	66.4	78.4	82.8
107.5°	408.3	435.4	68.7	80.5	85.0
110°	482.4	505.2	190.6	81.7	86.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.1	571.6	553.1	83.8	87.1
115°	626.1	644.5	671.8	167.7	89.3
117.5°	690.3	712.0	730.7	574.8	289.6
120°	762.1	778.5	798.1	811.2	664.1
122.5°	823.0	840.5	862.4	868.9	870.0
125°	885.1	899.4	920.1	927.6	930.9
127.5°	941.7	957.0	973.5	984.3	985.3
130°	995.1	1012.6	1024.5	1036.5	1035.5
132.5°	1049.6	1063.8	1075.7	1085.6	1084.5
135°	1095.4	1112.9	1122.5	1133.5	1131.3
137.5°	1143.2	1156.3	1167.2	1178.1	1174.9
140°	1190.0	1198.8	1210.7	1220.5	1215.1
142.5°	1229.3	1237.0	1251.1	1259.7	1254.3
145°	1270.7	1269.5	1288.0	1295.7	1290.2
147.5°	1306.5	1303.2	1321.8	1327.2	1322.9
150°	1341.4	1333.8	1351.2	1357.7	1352.3
152.5°	1370.7	1362.1	1378.4	1385.0	1377.3
155°	1399.1	1389.4	1402.4	1408.9	1400.3
157.5°	1421.9	1413.3	1423.1	1430.7	1421.9
160°	1441.6	1435.0	1441.6	1448.0	1440.5
162.5°	1458.9	1452.5	1457.9	1465.5	1455.7
165°	1474.2	1467.8	1471.0	1478.5	1471.0
167.5°	1486.2	1479.6	1483.0	1490.6	1480.8
170°	1496.0	1489.4	1491.7	1499.2	1489.4
172.5°	1502.5	1496.0	1498.3	1505.8	1496.0
175°	1508.0	1500.3	1502.5	1510.1	1499.2
177.5°	1510.1	1502.5	1503.7	1511.3	1501.5
180°	1504.7	1504.7	1504.7	1504.7	1504.7

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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	10.13	11.03	11.02	11.93	13.09	6.09	6.99	6.98	7.90	9.05
	3H	11.81	12.62	12.72	13.54	14.72	7.28	8.09	8.19	9.01	10.19
	4H	12.43	13.19	13.35	14.11	15.30	7.74	8.50	8.66	9.42	10.61
	6H	12.86	13.56	13.79	14.49	15.69	8.06	8.76	9.00	9.69	10.90
	8H	12.99	13.66	13.93	14.60	15.81	8.16	8.82	9.10	9.77	10.97
	12H	13.06	13.69	14.00	14.63	15.86	8.20	8.84	9.15	9.78	11.00
4H	2H	10.15	10.91	11.08	11.84	13.03	6.69	7.45	7.62	8.38	9.57
	3H	12.00	12.63	12.93	13.58	14.79	8.05	8.68	8.99	9.64	10.84
	4H	12.69	13.27	13.64	14.22	15.45	8.61	9.18	9.55	10.13	11.36
	6H	13.22	13.71	14.18	14.69	15.92	9.03	9.52	9.99	10.50	11.73
	8H	13.40	13.86	14.36	14.83	16.07	9.16	9.62	10.12	10.59	11.83
	12H	13.50	13.92	14.48	14.90	16.15	9.23	9.65	10.21	10.63	11.88
8H	4H	12.67	13.13	13.63	14.10	15.34	8.89	9.36	9.86	10.32	11.57
	6H	13.24	13.62	14.23	14.63	15.88	9.42	9.80	10.40	10.81	12.05
	8H	13.46	13.80	14.46	14.80	16.06	9.61	9.95	10.61	10.94	12.21
	12H	13.61	13.91	14.61	14.90	16.20	9.73	10.03	10.73	11.02	12.33
12H	4H	12.62	13.04	13.60	14.02	15.27	8.90	9.32	9.88	10.30	11.55
	6H	13.22	13.56	14.21	14.55	15.81	9.47	9.80	10.46	10.80	12.06
	8H	13.45	13.74	14.44	14.73	16.04	9.68	9.98	10.68	10.97	12.28

END OF REPORT