

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: P922535

Luminaire Tested: DFN2DIP-PN4F0-120D050US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922535
REPORT IS A COMBINATION OF REPORTS P901164 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US940-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

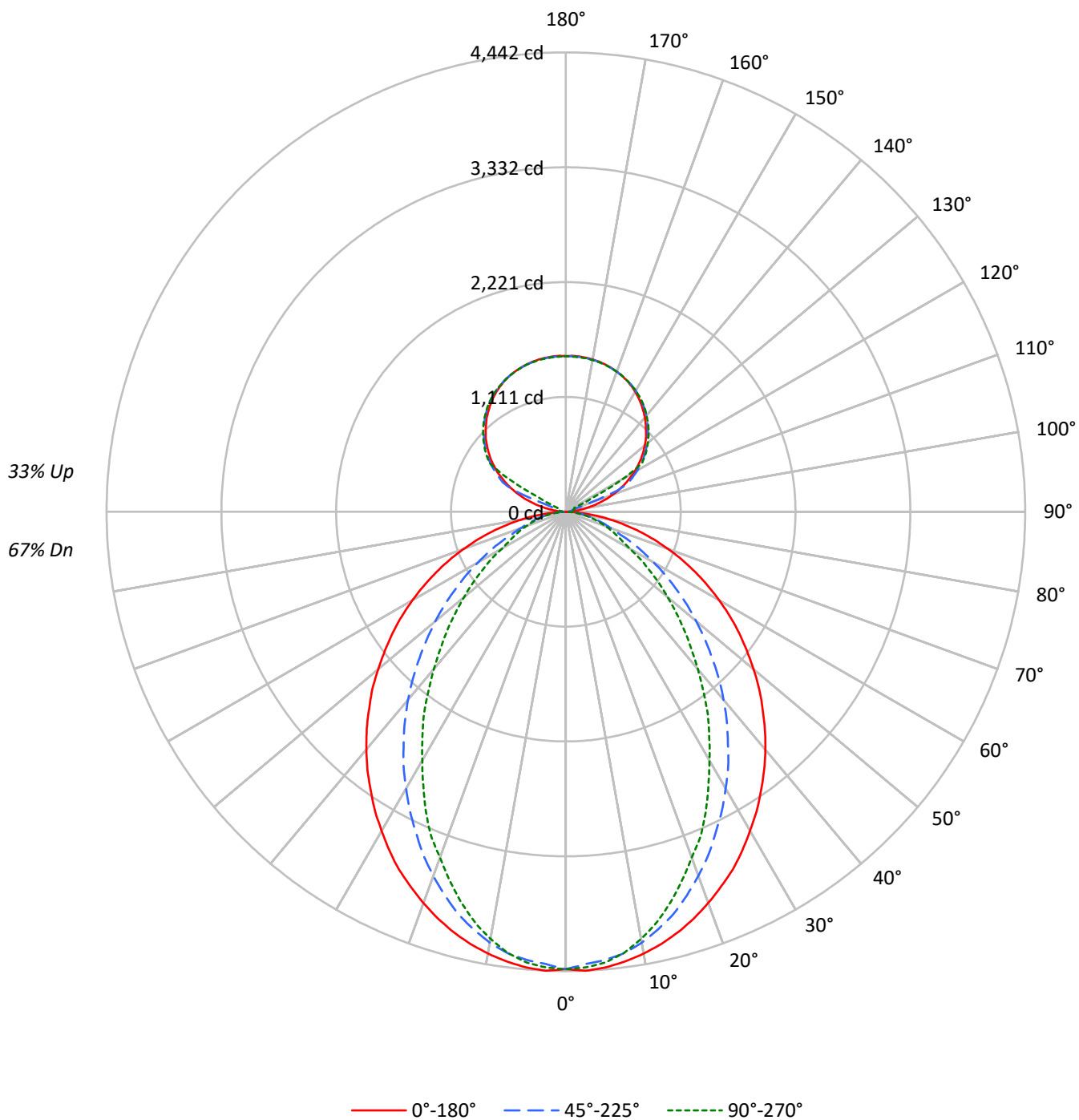
Lumens per Lamp: N/A
Luminaire Lumens: 13509.4 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72	67	67	67
1	102	98	94	91	96	93	89	86	83	80	78	73	71	70	65	63	62	58	58	58
2	94	86	80	75	88	82	77	72	73	69	66	65	62	59	58	55	53	50	50	50
3	86	77	69	64	81	73	66	61	65	60	56	58	54	51	52	49	46	43	43	43
4	79	68	61	55	74	65	58	52	58	53	48	52	48	44	47	43	40	37	37	37
5	73	61	53	47	69	58	51	46	53	47	42	47	43	39	42	39	36	33	33	33
6	67	55	47	42	63	53	45	40	48	42	37	43	38	34	39	35	32	29	29	29
7	63	50	42	37	59	48	41	36	44	38	33	39	35	31	36	32	28	26	26	26
8	58	46	38	33	55	44	37	32	40	34	30	36	31	28	33	29	26	24	24	24
9	54	42	35	30	51	40	33	29	37	31	27	34	29	25	30	26	23	21	21	21
10	51	39	32	27	48	37	31	26	34	28	25	31	26	23	28	24	21	20	20	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3228	3228	3228
5°	3233	3177	3198
10°	3201	3115	3094
15°	3157	3013	2934
20°	3099	2871	2737
25°	3039	2713	2547
30°	2959	2550	2306
35°	2881	2375	2093
40°	2801	2194	1850
45°	2708	1993	1630
50°	2612	1790	1414
55°	2511	1572	1207
60°	2395	1345	994
65°	2262	1115	896
70°	2100	899	811
75°	1897	794	739
80°	1602	667	643
85°	1116	448	488

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2708 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.5	3.1
10°-20°	1137.8	8.4
20°-30°	1597.5	11.8
30°-40°	1741.4	12.9
40°-50°	1600.5	11.8
50°-60°	1256.9	9.3
60°-70°	818.2	6.1
70°-80°	421.2	3.1
80°-90°	110.2	0.8
90°-100°	49.6	0.4
100°-110°	185.0	1.4
110°-120°	490.6	3.6
120°-130°	813.6	6.0
130°-140°	864.3	6.4
140°-150°	803.2	5.9
150°-160°	645.8	4.8
160°-170°	416.1	3.1
170°-180°	143.2	1.1
0°-30°	3149.8	23.3
0°-40°	4891.2	36.2
0°-60°	7748.6	57.4
0°-90°	9098.1	67.3
90°-120°	725.2	5.4
90°-150°	3206.2	23.7
90°-180°	4411.0	32.7
0°-180°	13509.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4422	4422	4422	4422	4422	
5°	4422	4403	4350	4386	4375	419
15°	4206	4162	4026	3950	3910	1185
25°	3818	3690	3426	3262	3202	1756
35°	3290	3086	2734	2482	2393	2059
45°	2690	2421	2001	1717	1621	2077
55°	2045	1733	1301	1061	985	1827
65°	1381	1056	696	560	548	1369
75°	736	456	320	292	288	779
85°	172	88	76	76	76	197
90°	1	13	22	27	29	13
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°	4422.5	4422.5	4422.5	4422.5	4422.5
2.5°	4442.5	4422.5	4378.4	4418.7	4410.6
5°	4422.5	4402.6	4350.3	4386.4	4374.6
7.5°	4386.4	4362.6	4306.6	4322.3	4302.3
10°	4338.4	4310.4	4230.5	4218.2	4194.5
12.5°	4278.5	4242.5	4134.1	4110.4	4066.3
15°	4206.4	4162.2	4026.3	3950.3	3910.4
17.5°	4122.3	4058.2	3890.0	3802.2	3738.0
20°	4026.3	3946.1	3746.1	3646.3	3557.9
22.5°	3922.3	3830.2	3597.9	3462.0	3402.1
25°	3818.3	3690.0	3425.9	3262.0	3201.7
27.5°	3694.3	3557.9	3265.8	3077.7	2985.5
30°	3562.2	3409.8	3089.6	2885.8	2777.5
32.5°	3434.0	3249.7	2921.9	2681.6	2581.3
35°	3290.1	3085.8	2733.7	2481.5	2393.2
37.5°	3149.9	2929.5	2557.5	2281.1	2181.3
40°	3001.7	2761.8	2373.3	2089.2	1985.1
42.5°	2849.6	2593.6	2189.4	1893.0	1793.2
45°	2689.6	2421.3	2001.3	1716.8	1620.8
47.5°	2537.5	2253.5	1821.2	1536.8	1448.9
50°	2369.5	2085.4	1645.0	1368.6	1285.0
52.5°	2205.1	1904.9	1476.9	1212.7	1136.8
55°	2045.0	1732.9	1300.6	1060.7	984.7
57.5°	1881.1	1560.9	1144.8	920.6	856.5
60°	1713.0	1392.8	980.4	776.7	712.6
62.5°	1549.1	1228.9	840.3	648.5	616.5
65°	1380.9	1056.5	696.4	560.5	548.2
67.5°	1220.8	896.3	560.5	492.1	480.3
70°	1052.7	740.6	464.1	424.2	408.0
72.5°	892.6	596.2	388.1	356.2	348.2
75°	736.3	456.0	320.2	292.1	288.3
77.5°	580.5	324.0	252.3	236.1	228.0
80°	436.1	232.3	191.9	176.2	176.2
82.5°	304.1	156.2	132.1	123.9	123.9
85°	172.0	87.9	76.0	76.0	76.0
87.5°	64.1	31.8	31.8	28.0	28.0
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	12.71	13.71	13.51	14.52	15.52	8.68	9.67	9.48	10.49	11.49
	3H	14.40	15.29	15.22	16.12	17.15	9.88	10.77	10.69	11.59	12.63
	4H	15.02	15.86	15.85	16.69	17.74	10.34	11.17	11.17	12.01	13.05
	6H	15.45	16.23	16.30	17.07	18.12	10.67	11.44	11.51	12.28	13.34
	8H	15.59	16.32	16.44	17.18	18.24	10.76	11.50	11.61	12.36	13.41
	12H	15.65	16.35	16.51	17.21	18.29	10.81	11.51	11.67	12.36	13.45
4H	2H	12.75	13.59	13.58	14.42	15.47	9.29	10.13	10.13	10.97	12.01
	3H	14.60	15.29	15.44	16.16	17.22	10.66	11.35	11.50	12.22	13.28
	4H	15.30	15.93	16.16	16.80	17.88	11.21	11.85	12.07	12.71	13.80
	6H	15.82	16.37	16.70	17.26	18.35	11.64	12.19	12.52	13.08	14.17
	8H	16.00	16.51	16.88	17.40	18.50	11.77	12.28	12.65	13.17	14.27
	12H	16.11	16.57	17.00	17.47	18.58	11.85	12.31	12.74	13.21	14.32
8H	4H	15.28	15.79	16.15	16.67	17.77	11.51	12.02	12.38	12.90	14.00
	6H	15.85	16.27	16.76	17.20	18.30	12.03	12.45	12.94	13.38	14.48
	8H	16.07	16.44	16.99	17.36	18.48	12.23	12.60	13.14	13.52	14.64
	12H	16.22	16.55	17.14	17.46	18.63	12.35	12.68	13.27	13.59	14.76
12H	4H	15.24	15.69	16.13	16.60	17.71	11.52	11.98	12.42	12.88	13.99
	6H	15.83	16.20	16.74	17.12	18.24	12.08	12.46	13.00	13.38	14.50
	8H	16.06	16.39	16.97	17.30	18.47	12.30	12.63	13.22	13.54	14.71

END OF REPORT