

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: P922533

Luminaire Tested: DFN2DIP-PN4F0-120D050US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922533
REPORT IS A COMBINATION OF REPORTS P901163 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US940-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

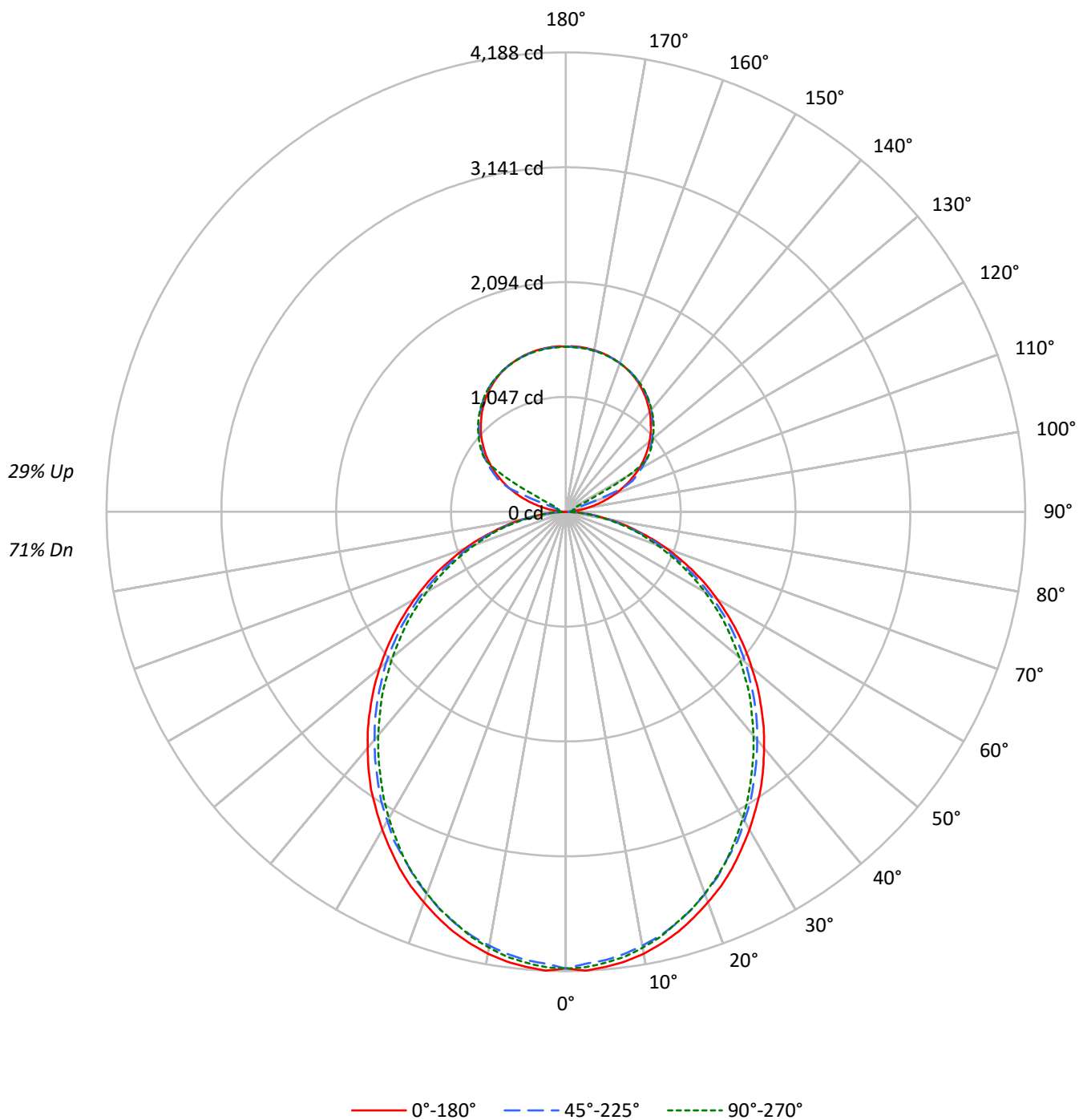
Lumens per Lamp: N/A
Luminaire Lumens: 15007.5 lumens
Efficiency: N/A
Efficacy: 91.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3039	3039	3039
5°	3044	2997	3018
10°	3019	2957	2977
15°	2975	2909	2914
20°	2915	2842	2849
25°	2855	2761	2774
30°	2781	2686	2679
35°	2710	2598	2578
40°	2623	2509	2481
45°	2535	2419	2383
50°	2440	2326	2269
55°	2341	2217	2165
60°	2228	2088	2045
65°	2106	1955	1904
70°	1949	1792	1752
75°	1732	1598	1612
80°	1472	1350	1345
85°	1065	921	900

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2535 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.9	2.6
10°-20°	1102.6	7.3
20°-30°	1620.4	10.8
30°-40°	1882.0	12.5
40°-50°	1879.7	12.5
50°-60°	1639.0	10.9
60°-70°	1211.6	8.1
70°-80°	685.5	4.6
80°-90°	183.6	1.2
90°-100°	49.6	0.3
100°-110°	185.0	1.2
110°-120°	490.6	3.3
120°-130°	813.6	5.4
130°-140°	864.3	5.8
140°-150°	803.2	5.4
150°-160°	645.8	4.3
160°-170°	416.1	2.8
170°-180°	143.2	1.0
0°-30°	3114.9	20.8
0°-40°	4996.9	33.3
0°-60°	8515.5	56.7
0°-90°	10596.2	70.6
90°-120°	725.2	4.8
90°-150°	3206.2	21.4
90°-180°	4411.0	29.4
0°-180°	15007.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4164	4164	4164	4164	4164	
5°	4164	4148	4104	4136	4128	395
15°	3964	3940	3888	3904	3884	1116
25°	3587	3555	3487	3495	3487	1651
35°	3095	3055	2991	2967	2947	1933
45°	2518	2490	2430	2386	2370	1944
55°	1906	1882	1834	1786	1766	1704
65°	1285	1261	1221	1185	1165	1271
75°	672	665	644	621	629	718
85°	164	160	156	144	140	183
90°	1	13	22	27	29	14
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°	4163.7	4163.7	4163.7	4163.7	4163.7
2.5°	4187.8	4167.9	4123.7	4163.7	4156.0
5°	4163.7	4147.9	4103.7	4135.6	4127.9
7.5°	4135.6	4111.8	4067.6	4099.9	4091.9
10°	4091.9	4063.8	4015.8	4047.7	4035.8
12.5°	4031.5	4007.7	3959.7	3979.7	3971.6
15°	3963.6	3939.8	3887.5	3903.6	3883.7
17.5°	3879.5	3855.7	3803.4	3823.4	3803.4
20°	3787.3	3763.5	3707.5	3719.3	3703.6
22.5°	3695.5	3659.4	3607.1	3607.1	3599.1
25°	3587.2	3555.3	3487.4	3495.1	3487.4
27.5°	3467.0	3439.0	3387.2	3375.2	3355.3
30°	3347.2	3314.9	3255.0	3243.2	3227.0
32.5°	3218.9	3195.2	3131.0	3106.8	3090.7
35°	3094.9	3055.0	2990.8	2966.6	2946.7
37.5°	2954.7	2918.7	2854.5	2826.5	2806.5
40°	2810.8	2778.5	2714.3	2678.6	2662.5
42.5°	2670.6	2638.3	2574.5	2534.2	2510.4
45°	2518.5	2490.5	2430.1	2386.4	2370.3
47.5°	2370.3	2342.2	2278.1	2233.9	2210.1
50°	2213.9	2194.0	2137.9	2081.8	2061.8
52.5°	2061.8	2033.8	1982.0	1937.8	1909.8
55°	1905.9	1881.8	1833.7	1785.7	1765.8
57.5°	1749.6	1729.7	1677.4	1629.4	1613.3
60°	1593.3	1577.6	1521.5	1477.4	1465.4
62.5°	1441.3	1413.2	1373.3	1333.4	1317.2
65°	1285.4	1261.1	1221.2	1185.1	1165.2
67.5°	1125.2	1104.8	1069.2	1041.2	1025.0
70°	977.0	960.8	924.7	896.7	881.0
72.5°	824.9	808.8	788.8	760.8	748.9
75°	672.4	664.8	644.3	620.6	628.7
77.5°	536.5	520.3	512.3	500.3	488.5
80°	400.6	396.3	388.3	376.4	368.3
82.5°	272.2	272.2	268.5	252.4	252.4
85°	164.0	160.2	156.3	144.0	140.2
87.5°	72.2	64.1	56.1	44.1	39.9
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	12.86	13.94	13.61	14.72	15.66	12.42	13.50	13.17	14.28	15.22
	3H	14.54	15.51	15.31	16.30	17.27	14.05	15.02	14.82	15.81	16.79
	4H	15.14	16.05	15.92	16.85	17.84	14.65	15.57	15.44	16.37	17.35
	6H	15.55	16.40	16.35	17.20	18.20	15.06	15.91	15.86	16.71	17.71
	8H	15.66	16.47	16.47	17.29	18.29	15.17	15.98	15.98	16.80	17.80
	12H	15.72	16.49	16.54	17.31	18.33	15.22	15.99	16.04	16.81	17.83
4H	2H	13.34	14.26	14.14	15.06	16.05	12.99	13.91	13.79	14.71	15.69
	3H	15.23	16.00	16.04	16.83	17.83	14.83	15.60	15.64	16.43	17.43
	4H	15.96	16.66	16.78	17.49	18.52	15.54	16.24	16.36	17.07	18.10
	6H	16.49	17.09	17.32	17.95	18.98	16.06	16.67	16.90	17.53	18.56
	8H	16.65	17.21	17.48	18.06	19.11	16.22	16.78	17.06	17.63	18.68
	12H	16.73	17.24	17.59	18.11	19.16	16.29	16.80	17.15	17.67	18.72
8H	4H	16.17	16.74	17.01	17.59	18.64	15.80	16.37	16.64	17.22	18.27
	6H	16.82	17.29	17.68	18.18	19.23	16.44	16.91	17.31	17.80	18.85
	8H	17.04	17.46	17.92	18.35	19.41	16.66	17.07	17.54	17.96	19.03
	12H	17.19	17.55	18.07	18.43	19.55	16.78	17.15	17.67	18.03	19.15
12H	4H	16.17	16.68	17.03	17.55	18.60	15.81	16.32	16.67	17.19	18.24
	6H	16.85	17.27	17.73	18.15	19.22	16.48	16.90	17.36	17.79	18.85
	8H	17.10	17.47	17.99	18.35	19.47	16.73	17.10	17.61	17.98	19.10