

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: P902371

Luminaire Tested: DFN2DIP-4P4F0-070D030US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902371
REPORT IS A COMBINATION OF REPORTS P900607 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D030US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

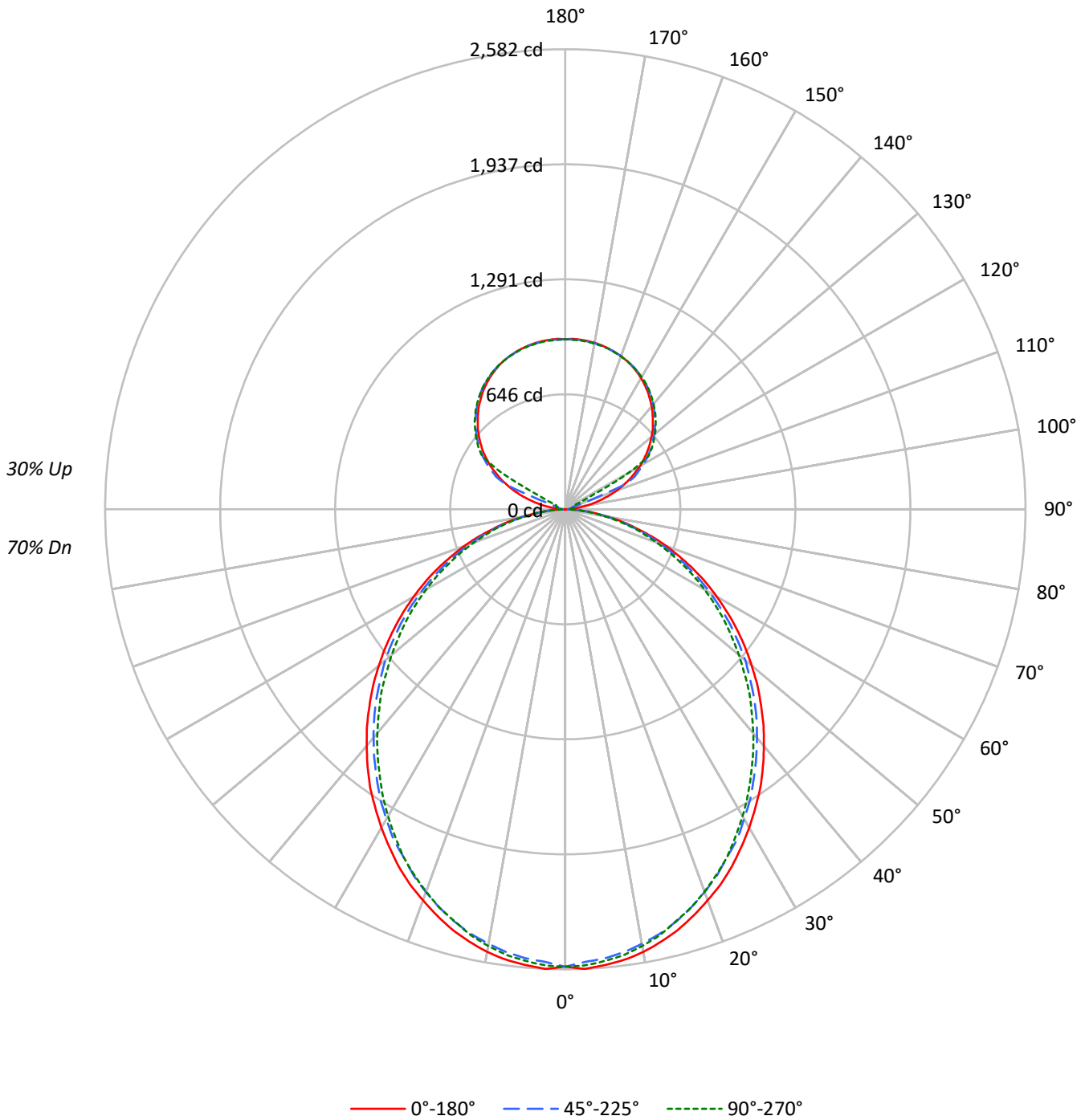
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9331.2 lumens
Efficiency: N/A
Efficacy: 95.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 97.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	75	75	75	75	75	75	70
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63	63	63	63	59
2	93	85	79	74	88	81	75	71	73	68	64	65	62	59	58	55	53	53	53	53	49
3	85	75	68	62	80	71	65	59	64	59	54	58	53	50	51	48	45	45	45	45	42
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39	39	39	39	36
5	72	60	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34	34	34	34	31
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	33	30	30	30	30	27
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27	27	27	27	24
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24	24	24	24	22
9	53	40	33	27	50	39	32	27	35	29	25	32	27	23	29	25	22	22	22	22	20
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20	20	20	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1665	1665	1665
5°	1668	1643	1654
10°	1655	1621	1632
15°	1631	1595	1598
20°	1598	1558	1563
25°	1565	1515	1522
30°	1524	1474	1470
35°	1486	1426	1415
40°	1438	1377	1362
45°	1390	1329	1309
50°	1339	1277	1247
55°	1284	1218	1190
60°	1223	1148	1125
65°	1156	1076	1048
70°	1070	987	965
75°	952	882	890
80°	810	747	745
85°	588	514	502

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1390 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	2.6
10°-20°	679.9	7.3
20°-30°	999.1	10.7
30°-40°	1160.4	12.4
40°-50°	1159.0	12.4
50°-60°	1010.6	10.8
60°-70°	747.1	8.0
70°-80°	422.7	4.5
80°-90°	113.2	1.2
90°-100°	31.5	0.3
100°-110°	117.3	1.3
110°-120°	311.1	3.3
120°-130°	516.0	5.5
130°-140°	548.1	5.9
140°-150°	509.4	5.5
150°-160°	409.6	4.4
160°-170°	263.9	2.8
170°-180°	90.8	1.0
0°-30°	1920.6	20.6
0°-40°	3081.0	33.0
0°-60°	5250.6	56.3
0°-90°	6533.5	70.0
90°-120°	459.9	4.9
90°-150°	2033.4	21.8
90°-180°	2798.0	30.0
0°-180°	9331.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2395	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	793	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	1	8	14	17	19	9
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.2	2567.2	2567.2	2567.2	2567.2
2.5°	2582.2	2569.8	2542.6	2567.2	2562.5
5°	2567.2	2557.6	2530.3	2550.0	2545.2
7.5°	2550.0	2535.3	2508.0	2528.0	2523.0
10°	2523.0	2505.7	2476.1	2495.8	2488.4
12.5°	2485.8	2471.2	2441.6	2453.8	2448.8
15°	2443.9	2429.2	2397.0	2407.0	2394.6
17.5°	2392.0	2377.4	2345.1	2357.5	2345.1
20°	2335.1	2320.5	2285.9	2293.3	2283.6
22.5°	2278.6	2256.4	2224.1	2224.1	2219.1
25°	2211.9	2192.2	2150.3	2155.0	2150.3
27.5°	2137.7	2120.4	2088.5	2081.1	2068.8
30°	2063.9	2043.9	2007.0	1999.7	1989.7
32.5°	1984.7	1970.1	1930.5	1915.6	1905.6
35°	1908.3	1883.7	1844.1	1829.2	1816.8
37.5°	1821.8	1799.6	1760.0	1742.8	1730.4
40°	1733.1	1713.2	1673.6	1651.6	1641.6
42.5°	1646.6	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.6	1498.4	1471.4	1461.4
47.5°	1461.4	1444.2	1404.6	1377.3	1362.7
50°	1365.1	1352.7	1318.1	1283.6	1271.3
52.5°	1271.3	1254.1	1222.1	1194.9	1177.5
55°	1175.2	1160.3	1130.7	1101.1	1088.7
57.5°	1078.8	1066.5	1034.3	1004.7	994.8
60°	982.4	972.7	938.2	911.0	903.6
62.5°	888.6	871.4	846.8	822.2	812.2
65°	792.6	777.6	753.0	730.8	718.4
67.5°	693.8	681.3	659.2	642.0	632.0
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.4	469.1	461.8
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.1	227.1
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3



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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	10.73	11.81	11.50	12.60	13.55	10.29	11.36	11.05	12.15	13.10
	3H	12.42	13.38	13.19	14.18	15.16	11.93	12.89	12.70	13.69	14.67
	4H	13.02	13.93	13.81	14.73	15.73	12.52	13.43	13.32	14.24	15.23
	6H	13.43	14.27	14.24	15.09	16.10	12.93	13.77	13.74	14.59	15.60
	8H	13.55	14.35	14.36	15.18	16.19	13.04	13.85	13.86	14.68	15.69
	12H	13.60	14.37	14.43	15.19	16.23	13.09	13.86	13.92	14.68	15.72
4H	2H	11.22	12.13	12.02	12.94	13.93	10.87	11.78	11.67	12.58	13.58
	3H	13.11	13.87	13.92	14.71	15.72	12.71	13.47	13.52	14.31	15.32
	4H	13.84	14.53	14.67	15.37	16.41	13.42	14.11	14.24	14.95	15.99
	6H	14.37	14.97	15.21	15.83	16.88	13.94	14.54	14.78	15.40	16.45
	8H	14.53	15.09	15.38	15.95	17.01	14.09	14.65	14.94	15.51	16.57
	12H	14.62	15.12	15.48	16.00	17.06	14.17	14.67	15.03	15.55	16.61
8H	4H	14.05	14.62	14.90	15.47	16.53	13.68	14.24	14.52	15.10	16.15
	6H	14.70	15.17	15.57	16.07	17.12	14.32	14.78	15.19	15.68	16.74
	8H	14.93	15.34	15.81	16.23	17.31	14.54	14.95	15.42	15.84	16.92
	12H	15.07	15.44	15.96	16.32	17.45	14.66	15.03	15.55	15.91	17.04
12H	4H	14.05	14.56	14.92	15.43	16.50	13.68	14.19	14.55	15.07	16.13
	6H	14.73	15.15	15.62	16.04	17.11	14.36	14.78	15.25	15.67	16.74
	8H	14.99	15.35	15.88	16.24	17.37	14.61	14.97	15.50	15.86	16.99