

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: P915931

Luminaire Tested: DFN2DIP-4P4F0-030D070US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915931
REPORT IS A COMBINATION OF REPORTS P900647 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D070US930-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

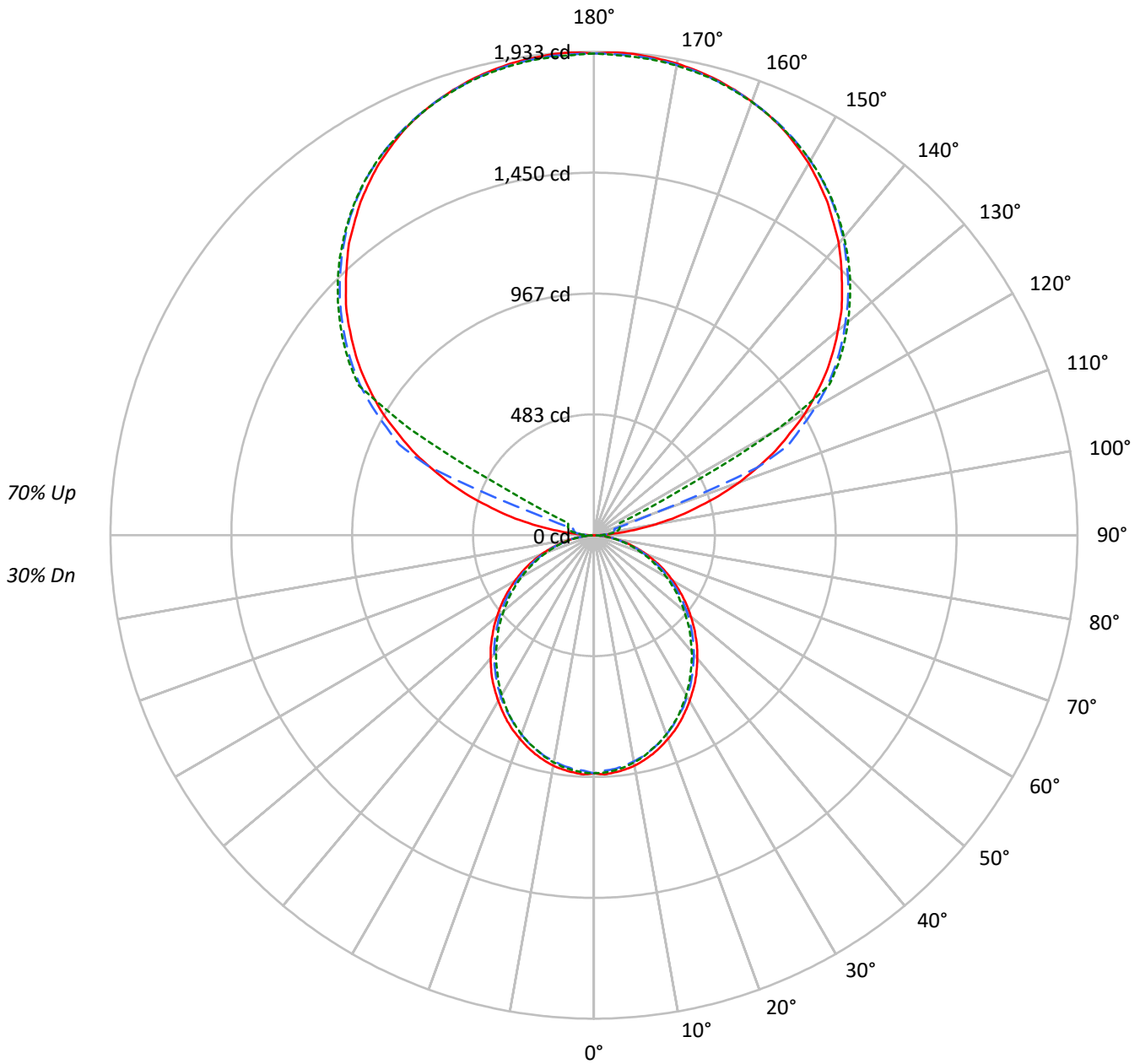
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8071.5 lumens
Efficiency: N/A
Efficacy: 90.9 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-Indirect

Input Watts (W): 88.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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



— 0°-180° - - 45°-225° - - - 90°-270°



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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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	93	89	85	82	84	80	77	74	63	61	59	48	46	45	33	33	32	33	33	32	25
2	85	78	72	67	76	70	65	61	55	52	49	42	40	38	29	28	27	29	28	27	21
3	77	68	61	56	69	62	56	51	49	45	41	37	34	32	26	24	23	26	24	23	18
4	71	60	53	47	63	54	48	43	43	39	35	33	30	27	23	21	20	23	21	20	15
5	65	54	46	40	58	48	42	37	39	34	30	29	26	23	21	19	17	21	19	17	13
6	60	48	40	35	53	43	37	32	35	30	26	27	23	20	19	17	15	19	17	15	12
7	55	43	35	30	49	39	32	28	31	26	23	24	21	18	17	15	13	17	15	13	10
8	51	39	32	26	46	35	29	24	28	24	20	22	19	16	16	14	12	16	14	12	9
9	47	36	28	23	42	32	26	22	26	21	18	20	17	14	15	12	11	15	12	11	8
10	44	32	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10	14	11	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	617	617	617
5°	618	609	613
10°	613	601	605
15°	605	591	592
20°	592	578	579
25°	580	561	564
30°	565	546	545
35°	551	529	524
40°	533	511	505
45°	516	493	485
50°	496	474	462
55°	476	452	441
60°	453	426	417
65°	428	399	388
70°	397	366	358
75°	353	327	330
80°	300	277	276
85°	218	190	186

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 994 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.6	1.1
10°-20°	252.0	3.1
20°-30°	370.4	4.6
30°-40°	430.2	5.3
40°-50°	429.7	5.3
50°-60°	374.6	4.6
60°-70°	277.0	3.4
70°-80°	156.7	1.9
80°-90°	44.7	0.6
90°-100°	63.5	0.8
100°-110°	236.8	2.9
110°-120°	627.9	7.8
120°-130°	1041.5	12.9
130°-140°	1106.3	13.7
140°-150°	1028.1	12.7
150°-160°	826.6	10.2
160°-170°	532.6	6.6
170°-180°	183.3	2.3
0°-30°	712.0	8.8
0°-40°	1142.2	14.2
0°-60°	1946.5	24.1
0°-90°	2424.8	30.0
90°-120°	928.2	11.5
90°-150°	4104.1	50.8
90°-180°	5647.0	70.0
0°-180°	8071.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	952	952	952	952	952	
5°	952	948	938	945	944	90
15°	906	901	889	892	888	255
25°	820	813	797	799	797	377
35°	707	698	684	678	674	442
45°	576	569	556	545	542	444
55°	436	430	419	408	404	390
65°	294	288	279	271	266	290
75°	154	152	147	142	144	164
85°	38	37	36	33	32	42
90°	1	17	28	35	38	7
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	951.7	951.7	951.7	951.7	951.7
2.5°	957.2	952.7	942.6	951.7	950.0
5°	951.7	948.1	938.0	945.3	943.5
7.5°	945.3	939.9	929.8	937.2	935.3
10°	935.3	928.9	917.9	925.2	922.5
12.5°	921.5	916.1	905.1	909.6	907.8
15°	906.0	900.6	888.6	892.3	887.7
17.5°	886.7	881.3	869.4	873.9	869.4
20°	865.7	860.2	847.4	850.1	846.5
22.5°	844.7	836.5	824.5	824.5	822.6
25°	819.9	812.7	797.1	798.9	797.1
27.5°	792.5	786.0	774.2	771.5	767.0
30°	765.1	757.7	744.0	741.3	737.6
32.5°	735.8	730.3	715.7	710.1	706.5
35°	707.4	698.3	683.6	678.1	673.5
37.5°	675.4	667.2	652.5	646.0	641.5
40°	642.5	635.1	620.4	612.3	608.6
42.5°	610.4	603.1	588.5	579.3	573.8
45°	575.7	569.2	555.5	545.4	541.8
47.5°	541.8	535.4	520.7	510.6	505.2
50°	506.1	501.5	488.7	475.9	471.3
52.5°	471.3	464.9	453.1	443.0	436.5
55°	435.7	430.2	419.1	408.2	403.7
57.5°	399.9	395.3	383.4	372.4	368.8
60°	364.2	360.6	347.8	337.7	335.0
62.5°	329.5	323.0	313.9	304.8	301.1
65°	293.8	288.3	279.2	270.9	266.4
67.5°	257.2	252.6	244.3	238.0	234.3
70°	223.3	219.6	211.4	205.0	201.4
72.5°	188.6	184.8	180.3	173.9	171.2
75°	153.7	152.0	147.3	141.9	143.7
77.5°	122.6	119.0	117.1	114.4	111.7
80°	91.6	90.6	88.7	86.0	84.2
82.5°	62.2	62.2	61.4	57.6	57.6
85°	37.5	36.6	35.7	32.9	32.0
87.5°	16.5	14.7	12.8	10.1	9.1
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1



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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	3.41	4.11	4.52	5.22	6.75	2.96	3.67	4.07	4.78	6.31
	3H	5.06	5.69	6.18	6.81	8.36	4.57	5.20	5.69	6.32	7.87
	4H	5.65	6.25	6.78	7.36	8.91	5.15	5.75	6.28	6.87	8.42
	6H	6.04	6.60	7.18	7.71	9.28	5.54	6.10	6.68	7.21	8.78
	8H	6.14	6.67	7.29	7.80	9.36	5.64	6.17	6.78	7.30	8.86
	12H	6.19	6.69	7.34	7.82	9.40	5.68	6.18	6.83	7.31	8.89
4H	2H	3.85	4.45	4.99	5.57	7.12	3.50	4.10	4.63	5.21	6.76
	3H	5.71	6.21	6.85	7.35	8.92	5.30	5.80	6.44	6.94	8.51
	4H	6.42	6.88	7.57	8.01	9.60	6.00	6.46	7.14	7.59	9.17
	6H	6.93	7.33	8.08	8.48	10.06	6.50	6.90	7.65	8.05	9.62
	8H	7.08	7.45	8.23	8.60	10.19	6.64	7.01	7.80	8.16	9.75
	12H	7.15	7.48	8.32	8.64	10.24	6.70	7.03	7.87	8.19	9.79
8H	4H	6.61	6.97	7.76	8.12	9.71	6.23	6.60	7.38	7.74	9.34
	6H	7.24	7.54	8.41	8.73	10.32	6.85	7.16	8.03	8.35	9.93
	8H	7.46	7.73	8.64	8.89	10.50	7.07	7.33	8.24	8.50	10.11
	12H	7.59	7.82	8.77	8.99	10.63	7.18	7.41	8.36	8.57	10.22
12H	4H	6.58	6.92	7.75	8.08	9.67	6.22	6.55	7.38	7.71	9.30
	6H	7.27	7.53	8.44	8.70	10.31	6.89	7.16	8.07	8.33	9.94
	8H	7.50	7.74	8.69	8.90	10.54	7.12	7.36	8.31	8.52	10.16