

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: P916011

Luminaire Tested: DFN2DIP-4P4F0-070D030US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916011
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-4P4F0-070D030US930-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

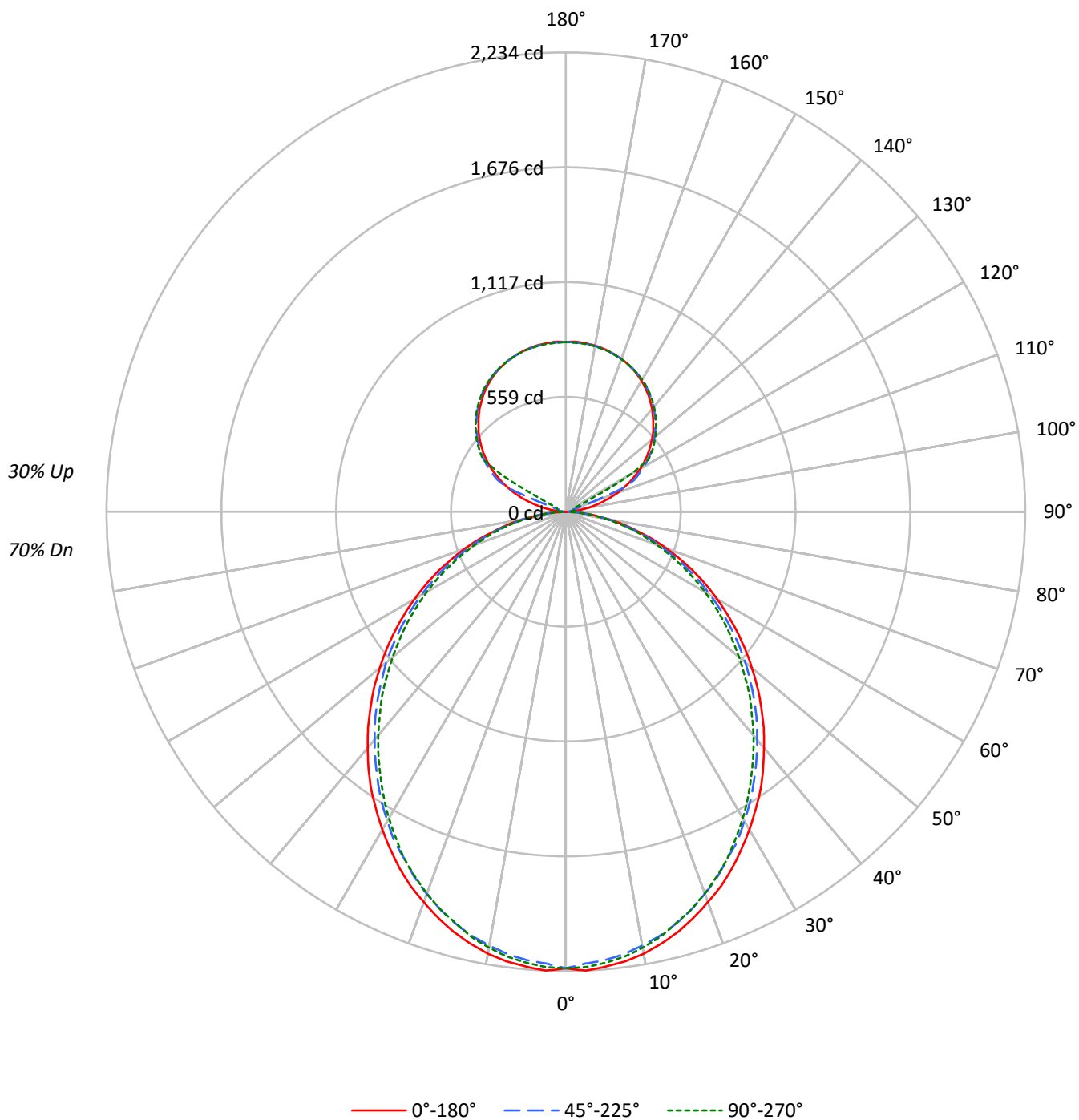
Lumens per Lamp: N/A
Luminaire Lumens: 8071.5 lumens
Efficiency: N/A
Efficacy: 83.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

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
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	94	94	94	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63
2	93	85	79	74	88	81	75	71	73	68	64	65	62	59	58	55	53
3	85	75	68	62	80	71	65	59	64	59	54	58	53	50	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39
5	72	60	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24
9	53	40	33	27	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°	1441	1441	1441
5°	1443	1421	1431
10°	1431	1402	1412
15°	1411	1380	1382
20°	1382	1348	1352
25°	1354	1310	1316
30°	1319	1275	1271
35°	1285	1233	1224
40°	1244	1191	1178
45°	1203	1149	1132
50°	1158	1105	1078
55°	1111	1054	1029
60°	1058	993	973
65°	1000	930	906
70°	926	854	835
75°	823	762	770
80°	700	646	644
85°	509	444	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1203 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	2.6
10°-20°	588.1	7.3
20°-30°	864.2	10.7
30°-40°	1003.7	12.4
40°-50°	1002.5	12.4
50°-60°	874.2	10.8
60°-70°	646.2	8.0
70°-80°	365.6	4.5
80°-90°	98.0	1.2
90°-100°	27.2	0.3
100°-110°	101.5	1.3
110°-120°	269.1	3.3
120°-130°	446.3	5.5
130°-140°	474.1	5.9
140°-150°	440.6	5.5
150°-160°	354.3	4.4
160°-170°	228.3	2.8
170°-180°	78.6	1.0
0°-30°	1661.3	20.6
0°-40°	2665.1	33.0
0°-60°	4541.7	56.3
0°-90°	5651.5	70.0
90°-120°	397.8	4.9
90°-150°	1758.9	21.8
90°-180°	2420.0	30.0
0°-180°	8071.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	1	7	12	15	16	7
95°	39	19	23	26	26	46
105°	182	200	36	43	45	194
115°	343	354	368	92	49	338
125°	486	493	505	509	511	433
135°	601	610	616	622	621	464
145°	697	696	707	711	708	436
155°	768	762	769	773	768	354
165°	809	805	807	811	807	228
175°	827	823	824	828	822	79
180°	826	826	826	826	826	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	0.6	7.2	11.9	15.0	16.1
92.5°	15.0	12.6	14.3	15.6	16.1
95°	38.8	19.1	23.2	26.3	25.7
97.5°	69.9	21.0	30.4	32.3	32.9
100°	105.7	23.9	34.1	38.8	40.0
102.5°	145.1	144.0	35.2	41.7	43.6
105°	181.6	199.5	36.4	43.0	45.4
107.5°	224.0	238.9	37.7	44.2	46.6
110°	264.6	277.1	104.5	44.8	47.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	302.9	313.6	303.5	46.0	47.8
115°	343.4	353.6	368.5	92.0	49.0
117.5°	378.7	390.6	400.8	315.4	158.9
120°	418.1	427.1	437.8	445.0	364.4
122.5°	451.5	461.1	473.1	476.6	477.3
125°	485.6	493.3	504.8	508.9	510.7
127.5°	516.7	525.0	534.0	540.0	540.5
130°	545.9	555.5	562.1	568.6	568.1
132.5°	575.8	583.6	590.1	595.5	594.9
135°	600.9	610.5	615.8	621.8	620.6
137.5°	627.1	634.3	640.3	646.3	644.5
140°	652.8	657.6	664.1	669.5	666.6
142.5°	674.4	678.6	686.3	691.0	688.1
145°	697.1	696.4	706.6	710.8	707.8
147.5°	716.7	714.9	725.1	728.1	725.7
150°	735.9	731.7	741.3	744.8	741.8
152.5°	751.9	747.2	756.2	759.8	755.6
155°	767.5	762.2	769.3	772.9	768.2
157.5°	780.1	775.3	780.7	784.9	780.1
160°	790.8	787.3	790.8	794.4	790.2
162.5°	800.4	796.8	799.8	804.0	798.6
165°	808.7	805.2	807.0	811.1	807.0
167.5°	815.3	811.7	813.5	817.7	812.4
170°	820.7	817.1	818.3	822.5	817.1
172.5°	824.3	820.7	821.9	826.1	820.7
175°	827.2	823.0	824.3	828.4	822.5
177.5°	828.4	824.3	824.9	829.1	823.7
180°	825.5	825.5	825.5	825.5	825.5

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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	10.23	11.31	10.99	12.09	13.04	9.79	10.86	10.55	11.65	12.60
	3H	11.91	12.88	12.69	13.67	14.66	11.42	12.39	12.20	13.18	14.17
	4H	12.51	13.42	13.31	14.23	15.22	12.02	12.93	12.81	13.74	14.73
	6H	12.93	13.77	13.74	14.58	15.59	12.43	13.27	13.24	14.08	15.09
	8H	13.04	13.84	13.86	14.68	15.69	12.54	13.34	13.36	14.17	15.18
	12H	13.10	13.86	13.92	14.69	15.73	12.59	13.35	13.41	14.18	15.22
4H	2H	10.72	11.63	11.52	12.43	13.43	10.36	11.27	11.16	12.08	13.07
	3H	12.61	13.37	13.42	14.21	15.22	12.20	12.96	13.01	13.80	14.81
	4H	13.34	14.03	14.16	14.87	15.91	12.91	13.61	13.74	14.44	15.48
	6H	13.87	14.47	14.71	15.33	16.37	13.44	14.04	14.28	14.90	15.94
	8H	14.03	14.59	14.87	15.44	16.50	13.59	14.15	14.43	15.01	16.06
	12H	14.11	14.62	14.98	15.50	16.56	13.66	14.17	14.53	15.05	16.11
8H	4H	13.55	14.11	14.40	14.97	16.03	13.17	13.74	14.02	14.59	15.65
	6H	14.20	14.66	15.07	15.56	16.62	13.81	14.28	14.69	15.18	16.23
	8H	14.42	14.84	15.31	15.73	16.80	14.03	14.44	14.92	15.34	16.41
	12H	14.57	14.93	15.46	15.82	16.95	14.16	14.52	15.05	15.41	16.53
12H	4H	13.55	14.05	14.41	14.93	15.99	13.18	13.68	14.04	14.56	15.62
	6H	14.23	14.64	15.11	15.54	16.61	13.86	14.27	14.74	15.16	16.24
	8H	14.49	14.85	15.37	15.74	16.86	14.11	14.47	14.99	15.35	16.48

END OF REPORT