

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: P917055

Luminaire Tested: DFN2DIP-PN4F0-110D080US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917055
REPORT IS A COMBINATION OF REPORTS P901216 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D080US930-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

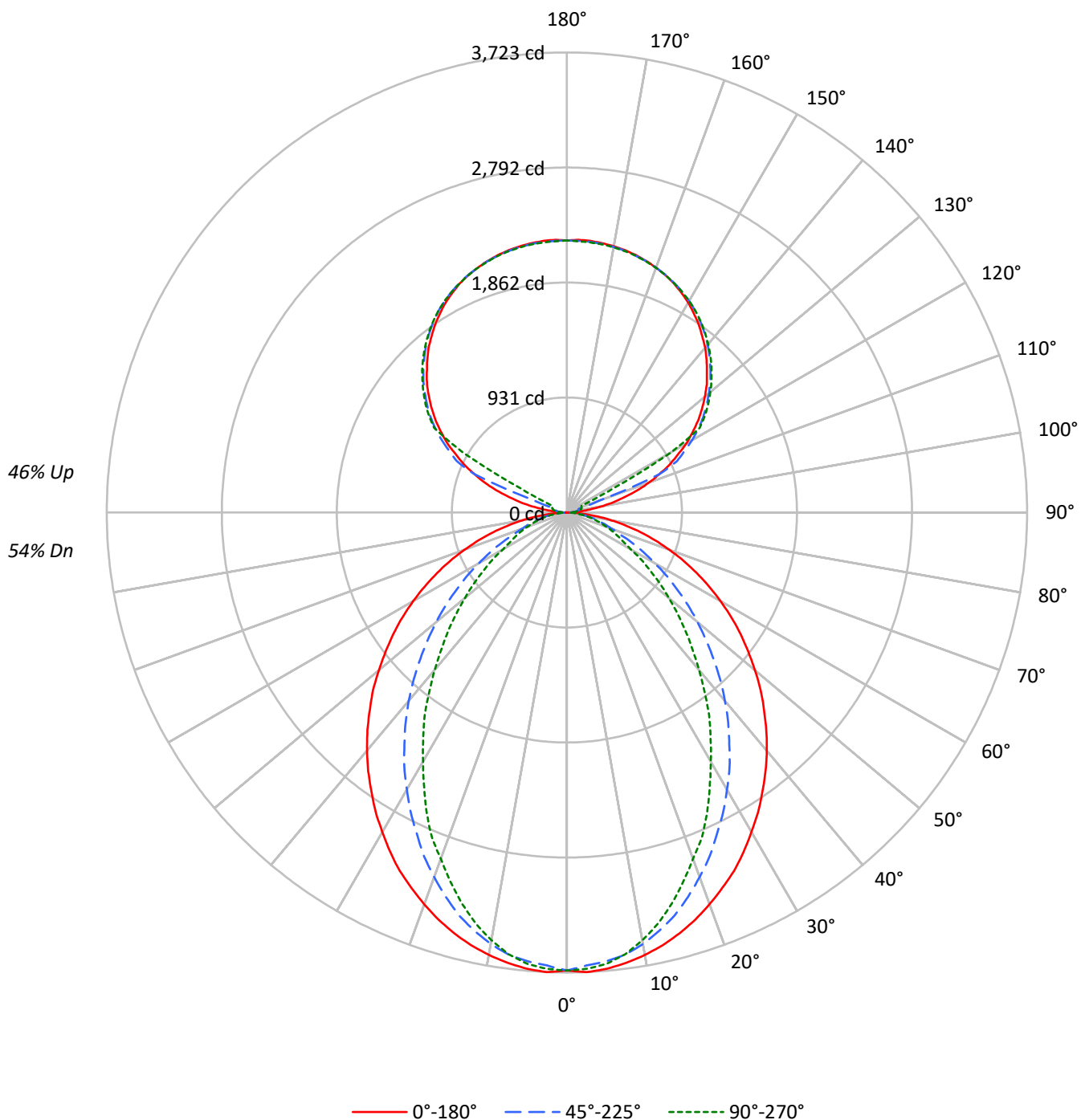
Lumens per Lamp: N/A
Luminaire Lumens: 14080.2 lumens
Efficiency: N/A
Efficacy: 81.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P917055

CATALOG NUMBER: DFN2DIP-PN4F0-110D080US930-RLLONL

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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2706	2706	2706
5°	2710	2663	2680
10°	2683	2611	2594
15°	2646	2525	2459
20°	2597	2407	2294
25°	2547	2274	2135
30°	2480	2137	1932
35°	2414	1990	1755
40°	2347	1839	1551
45°	2269	1670	1366
50°	2189	1500	1185
55°	2105	1318	1012
60°	2008	1128	833
65°	1896	934	751
70°	1760	754	680
75°	1590	665	620
80°	1343	559	539
85°	935	375	409

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2269 cd/sqm

TEST NUMBER: P917055

CATALOG NUMBER: DFN2DIP-PN4F0-110D080US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.5
10°-20°	953.6	6.8
20°-30°	1338.9	9.5
30°-40°	1459.5	10.4
40°-50°	1341.4	9.5
50°-60°	1053.5	7.5
60°-70°	685.7	4.9
70°-80°	353.0	2.5
80°-90°	94.0	0.7
90°-100°	72.6	0.5
100°-110°	270.6	1.9
110°-120°	717.6	5.1
120°-130°	1190.2	8.5
130°-140°	1264.3	9.0
140°-150°	1175.0	8.3
150°-160°	944.7	6.7
160°-170°	608.7	4.3
170°-180°	209.5	1.5
0°-30°	2639.9	18.7
0°-40°	4099.4	29.1
0°-60°	6494.2	46.1
0°-90°	7626.9	54.2
90°-120°	1060.8	7.5
90°-150°	4690.4	33.3
90°-180°	6453.0	45.8
0°-180°	14080.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	2	19	32	40	43	13
95°	104	51	62	70	68	123
105°	484	532	97	115	121	517
115°	916	943	983	245	131	902
125°	1295	1316	1346	1357	1362	1155
135°	1602	1628	1642	1658	1655	1238
145°	1859	1857	1884	1895	1887	1163
155°	2047	2032	2052	2061	2048	943
165°	2157	2147	2152	2163	2152	609
175°	2206	2195	2198	2209	2193	210
180°	2201	2201	2201	2201	2201	

TEST NUMBER: P917055

CATALOG NUMBER: DFN2DIP-PN4F0-110D080US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.5	50.9	62.0	70.2	68.5
97.5°	186.3	55.8	81.1	86.1	87.6
100°	282.0	63.8	90.8	103.5	106.6
102.5°	387.0	383.9	94.0	111.4	116.3
105°	484.2	532.1	97.2	114.6	121.1
107.5°	597.3	637.0	100.4	117.8	124.3
110°	705.7	739.0	278.8	119.5	125.8

TEST NUMBER: P917055

CATALOG NUMBER: DFN2DIP-PN4F0-110D080US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	807.6	836.2	809.2	122.5	127.5
115°	915.8	942.9	982.8	245.3	130.7
117.5°	1009.8	1041.6	1068.9	840.9	423.7
120°	1115.0	1138.8	1167.6	1186.7	971.6
122.5°	1204.0	1229.6	1261.6	1271.0	1272.8
125°	1294.9	1315.6	1345.9	1357.1	1361.8
127.5°	1377.7	1400.0	1424.1	1439.9	1441.4
130°	1455.8	1481.3	1498.8	1516.4	1514.8
132.5°	1535.5	1556.2	1573.7	1588.0	1586.5
135°	1602.4	1627.9	1642.1	1658.2	1655.0
137.5°	1672.4	1691.5	1707.6	1723.5	1718.7
140°	1740.8	1753.7	1771.2	1785.5	1777.5
142.5°	1798.4	1809.5	1830.1	1842.8	1834.8
145°	1858.9	1857.2	1884.2	1895.4	1887.4
147.5°	1911.3	1906.6	1933.6	1941.6	1935.3
150°	1962.3	1951.2	1976.7	1986.1	1978.2
152.5°	2005.3	1992.6	2016.4	2026.1	2014.9
155°	2046.7	2032.5	2051.6	2061.1	2048.4
157.5°	2080.2	2067.5	2081.9	2093.0	2080.2
160°	2108.9	2099.3	2108.9	2118.4	2107.2
162.5°	2134.3	2124.8	2132.7	2143.9	2129.6
165°	2156.6	2147.2	2151.9	2163.0	2151.9
167.5°	2174.2	2164.5	2169.4	2180.6	2166.2
170°	2188.6	2178.9	2182.1	2193.3	2178.9
172.5°	2198.0	2188.6	2191.8	2202.9	2188.6
175°	2206.0	2194.8	2198.0	2209.1	2193.3
177.5°	2209.1	2198.0	2199.7	2210.8	2196.5
180°	2201.2	2201.2	2201.2	2201.2	2201.2

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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	10.99	11.86	11.92	12.80	14.01	6.96	7.82	7.89	8.76	9.98
	3H	12.68	13.45	13.62	14.40	15.64	8.15	8.92	9.09	9.87	11.11
	4H	13.29	14.02	14.24	14.97	16.22	8.60	9.33	9.56	10.29	11.54
	6H	13.71	14.39	14.68	15.35	16.61	8.93	9.60	9.89	10.56	11.82
	8H	13.84	14.48	14.81	15.46	16.72	9.02	9.66	9.99	10.64	11.89
	12H	13.91	14.52	14.88	15.49	16.77	9.06	9.67	10.04	10.64	11.92
4H	2H	11.02	11.75	11.98	12.70	13.95	7.56	8.29	8.52	9.25	10.49
	3H	12.85	13.46	13.82	14.44	15.70	8.91	9.52	9.88	10.51	11.77
	4H	13.55	14.10	14.53	15.08	16.36	9.46	10.02	10.44	11.00	12.28
	6H	14.07	14.54	15.06	15.55	16.83	9.89	10.36	10.88	11.36	12.65
	8H	14.24	14.69	15.24	15.68	16.98	10.02	10.46	11.01	11.46	12.75
	12H	14.34	14.74	15.35	15.76	17.06	10.08	10.49	11.09	11.50	12.80
8H	4H	13.52	13.96	14.51	14.96	16.25	9.75	10.19	10.74	11.19	12.49
	6H	14.09	14.46	15.10	15.49	16.79	10.27	10.64	11.29	11.67	12.97
	8H	14.31	14.63	15.33	15.66	16.97	10.46	10.79	11.49	11.81	13.12
	12H	14.45	14.73	15.48	15.75	17.11	10.58	10.87	11.61	11.89	13.25
12H	4H	13.47	13.87	14.48	14.88	16.19	9.76	10.16	10.77	11.17	12.47
	6H	14.06	14.39	15.09	15.41	16.73	10.32	10.64	11.34	11.67	12.98
	8H	14.29	14.57	15.32	15.59	16.95	10.53	10.82	11.56	11.84	13.20