

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: P924215

Luminaire Tested: DFN2DIP-4P4F0-070D080US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924215
REPORT IS A COMBINATION OF REPORTS P900667 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D080US950-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

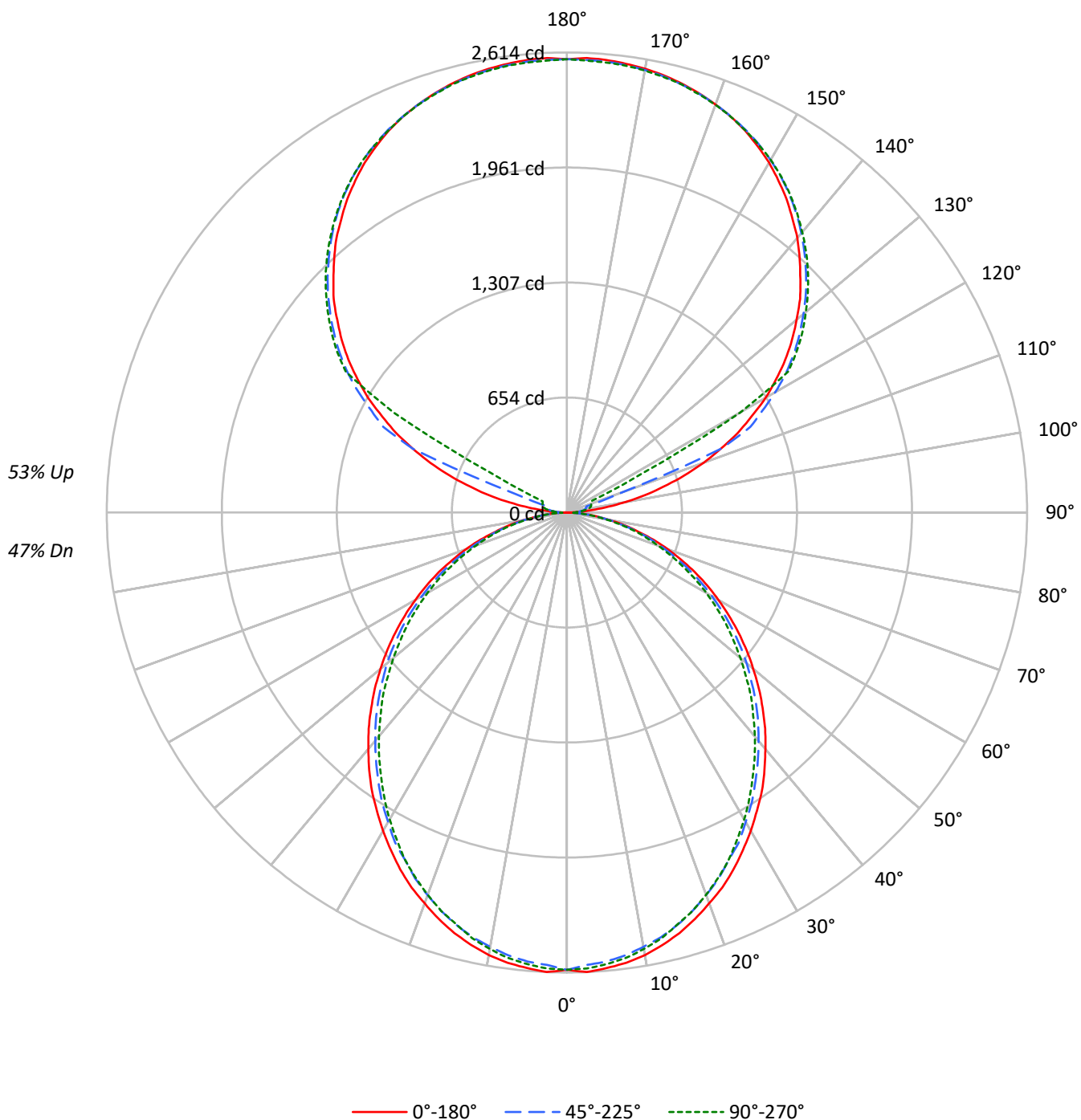
Lumens per Lamp: N/A
Luminaire Lumens: 14167.0 lumens
Efficiency: N/A
Efficacy: 95.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 147.8
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

TEST NUMBER: P924215

CATALOG NUMBER: DFN2DIP-4P4F0-070D080US950-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P924215

CATALOG NUMBER: DFN2DIP-4P4F0-070D080US950-FLONL

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	106	106	106	106	98	98	98	98	81	81	81	67	67	67	53	53	53
1	97	93	89	85	89	85	82	79	71	69	67	59	57	56	47	46	45
2	88	81	75	70	81	75	69	65	63	59	55	52	49	46	41	39	38
3	81	71	64	58	74	66	59	54	55	50	47	46	42	39	37	34	32
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	27	24
6	62	50	42	36	57	47	39	34	40	34	30	33	29	25	27	24	21
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19
8	53	41	33	28	49	38	31	27	33	27	23	27	23	20	22	19	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15
10	46	34	27	22	43	32	26	21	28	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1686	1686	1686
5°	1688	1663	1674
10°	1675	1641	1652
15°	1650	1614	1617
20°	1617	1577	1582
25°	1584	1533	1540
30°	1543	1492	1488
35°	1504	1443	1432
40°	1456	1394	1379
45°	1407	1345	1325
50°	1355	1293	1262
55°	1300	1233	1204
60°	1238	1162	1138
65°	1170	1089	1060
70°	1083	999	977
75°	964	892	901
80°	820	756	754
85°	595	520	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1407 cd/sqm

TEST NUMBER: P924215

CATALOG NUMBER: DFN2DIP-4P4F0-070D080US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.6	1.7
10°-20°	688.1	4.9
20°-30°	1011.3	7.1
30°-40°	1174.5	8.3
40°-50°	1173.1	8.3
50°-60°	1022.9	7.2
60°-70°	756.1	5.3
70°-80°	427.8	3.0
80°-90°	117.5	0.8
90°-100°	84.9	0.6
100°-110°	316.6	2.2
110°-120°	839.7	5.9
120°-130°	1392.7	9.8
130°-140°	1479.4	10.4
140°-150°	1374.9	9.7
150°-160°	1105.4	7.8
160°-170°	712.3	5.0
170°-180°	245.2	1.7
0°-30°	1943.9	13.7
0°-40°	3118.5	22.0
0°-60°	5314.4	37.5
0°-90°	6615.8	46.7
90°-120°	1241.3	8.8
90°-150°	5488.3	38.7
90°-180°	7551.0	53.3
0°-180°	14167.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2598	2598	2598	2598	2598	
5°	2598	2589	2561	2581	2576	247
15°	2474	2459	2426	2436	2424	697
25°	2239	2219	2176	2181	2176	1030
35°	1932	1907	1866	1851	1839	1206
45°	1572	1554	1517	1489	1479	1213
55°	1189	1174	1144	1114	1102	1063
65°	802	787	762	740	727	793
75°	420	415	402	387	392	448
85°	102	100	98	90	88	114
90°	2	22	37	47	50	13
95°	121	60	73	82	80	143
105°	567	623	114	134	142	605
115°	1072	1103	1150	287	153	1055
125°	1515	1540	1575	1588	1594	1351
135°	1875	1905	1922	1940	1936	1448
145°	2175	2173	2205	2218	2208	1360
155°	2395	2378	2401	2412	2397	1104
165°	2524	2512	2518	2531	2518	713
175°	2581	2568	2572	2585	2566	246
180°	2576	2576	2576	2576	2576	

TEST NUMBER: P924215

CATALOG NUMBER: DFN2DIP-4P4F0-070D080US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2598.4	2598.4	2598.4	2598.4	2598.4
2.5°	2613.6	2601.1	2573.5	2598.4	2593.6
5°	2598.4	2588.7	2561.1	2581.0	2576.2
7.5°	2581.0	2566.1	2538.5	2558.7	2553.7
10°	2553.7	2536.1	2506.2	2526.1	2518.7
12.5°	2516.0	2501.2	2471.2	2483.6	2478.6
15°	2473.6	2458.7	2426.1	2436.2	2423.7
17.5°	2421.1	2406.3	2373.6	2386.1	2373.6
20°	2363.5	2348.7	2313.7	2321.2	2311.4
22.5°	2306.3	2283.8	2251.2	2251.2	2246.1
25°	2238.8	2218.8	2176.5	2181.2	2176.5
27.5°	2163.7	2146.2	2113.9	2106.4	2093.9
30°	2089.0	2068.7	2031.4	2024.0	2013.9
32.5°	2008.8	1994.1	1954.0	1938.9	1928.8
35°	1931.5	1906.6	1866.5	1851.4	1838.9
37.5°	1844.0	1821.5	1781.4	1763.9	1751.4
40°	1754.1	1734.0	1693.9	1671.7	1661.6
42.5°	1666.6	1646.5	1606.7	1581.5	1566.7
45°	1571.7	1554.3	1516.6	1489.3	1479.2
47.5°	1479.2	1461.7	1421.7	1394.1	1379.3
50°	1381.7	1369.2	1334.2	1299.3	1286.8
52.5°	1286.8	1269.3	1237.0	1209.4	1191.8
55°	1189.4	1174.4	1144.4	1114.5	1102.0
57.5°	1091.9	1079.5	1046.8	1016.9	1006.9
60°	994.4	984.5	949.6	922.0	914.6
62.5°	899.4	882.0	857.1	832.2	822.1
65°	802.2	787.0	762.2	739.6	727.1
67.5°	702.2	689.6	667.2	649.8	639.7
70°	609.7	599.7	577.1	559.6	549.8
72.5°	514.8	504.8	492.3	474.8	467.4
75°	419.7	414.9	402.1	387.3	392.4
77.5°	334.9	324.7	319.7	312.2	304.9
80°	249.9	247.4	242.3	234.9	229.8
82.5°	169.9	169.9	167.5	157.5	157.5
85°	102.4	100.0	97.6	89.9	87.5
87.5°	45.0	40.1	35.0	27.6	24.9
90°	1.8	22.3	37.2	46.7	50.3
92.5°	46.7	39.2	44.7	48.5	50.3
95°	121.1	59.5	72.6	82.1	80.1
97.5°	218.0	65.3	94.9	100.7	102.5
100°	330.0	74.6	106.3	121.1	124.8
102.5°	452.9	449.2	110.0	130.3	136.1
105°	566.6	622.6	113.7	134.1	141.7
107.5°	698.9	745.4	117.5	137.9	145.4
110°	825.8	864.7	326.3	139.9	147.2

TEST NUMBER: P924215

CATALOG NUMBER: DFN2DIP-4P4F0-070D080US950-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	945.0	978.4	946.8	143.4	149.2
115°	1071.6	1103.3	1150.0	287.1	152.9
117.5°	1181.6	1218.8	1250.7	984.0	495.8
120°	1304.7	1332.5	1366.2	1388.5	1136.9
122.5°	1408.9	1438.8	1476.2	1487.3	1489.3
125°	1515.1	1539.5	1574.9	1587.9	1593.5
127.5°	1612.1	1638.2	1666.4	1684.9	1686.7
130°	1703.5	1733.3	1753.7	1774.3	1772.5
132.5°	1796.7	1821.0	1841.4	1858.2	1856.4
135°	1875.0	1904.9	1921.5	1940.3	1936.5
137.5°	1956.9	1979.3	1998.1	2016.7	2011.1
140°	2037.0	2052.1	2072.5	2089.3	2079.9
142.5°	2104.3	2117.3	2141.4	2156.3	2147.0
145°	2175.1	2173.1	2204.8	2217.9	2208.5
147.5°	2236.5	2230.9	2262.5	2271.9	2264.5
150°	2296.2	2283.1	2313.0	2324.0	2314.8
152.5°	2346.5	2331.6	2359.4	2370.8	2357.7
155°	2394.9	2378.3	2400.6	2411.7	2396.9
157.5°	2434.0	2419.2	2436.0	2449.1	2434.0
160°	2467.7	2456.5	2467.7	2478.8	2465.7
162.5°	2497.4	2486.3	2495.6	2508.6	2491.8
165°	2523.5	2512.5	2518.0	2531.0	2518.0
167.5°	2544.0	2532.8	2538.5	2551.6	2534.8
170°	2560.9	2549.6	2553.4	2566.5	2549.6
172.5°	2572.0	2560.9	2564.6	2577.7	2560.9
175°	2581.2	2568.2	2572.0	2585.0	2566.5
177.5°	2585.0	2572.0	2573.9	2587.0	2570.2
180°	2575.7	2575.7	2575.7	2575.7	2575.7

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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	8.79	9.62	9.78	10.62	11.94	8.35	9.18	9.33	10.18	11.50
	3H	10.46	11.20	11.45	12.21	13.55	9.97	10.71	10.96	11.72	13.06
	4H	11.05	11.75	12.05	12.76	14.11	10.55	11.26	11.56	12.27	13.62
	6H	11.45	12.10	12.47	13.11	14.47	10.95	11.60	11.97	12.61	13.97
	8H	11.56	12.18	12.58	13.21	14.56	11.05	11.67	12.08	12.70	14.06
	12H	11.60	12.19	12.63	13.22	14.60	11.09	11.68	12.12	12.71	14.09
4H	2H	9.25	9.96	10.27	10.97	12.31	8.90	9.60	9.91	10.61	11.96
	3H	11.12	11.71	12.14	12.75	14.11	10.71	11.30	11.74	12.34	13.70
	4H	11.84	12.38	12.87	13.41	14.79	11.41	11.95	12.45	12.98	14.37
	6H	12.36	12.82	13.40	13.88	15.25	11.92	12.39	12.97	13.44	14.82
	8H	12.51	12.94	13.55	13.99	15.38	12.07	12.51	13.11	13.55	14.95
	12H	12.58	12.98	13.64	14.04	15.44	12.13	12.53	13.19	13.59	14.99
8H	4H	12.03	12.47	13.08	13.51	14.91	11.66	12.09	12.70	13.14	14.53
	6H	12.67	13.03	13.74	14.12	15.51	12.29	12.64	13.35	13.73	15.12
	8H	12.89	13.21	13.97	14.28	15.69	12.50	12.82	13.57	13.89	15.30
	12H	13.03	13.31	14.11	14.37	15.83	12.62	12.89	13.69	13.96	15.41
12H	4H	12.02	12.41	13.08	13.47	14.87	11.65	12.04	12.71	13.10	14.50
	6H	12.70	13.02	13.77	14.09	15.50	12.33	12.64	13.40	13.72	15.13
	8H	12.94	13.22	14.02	14.29	15.74	12.56	12.84	13.64	13.91	15.36

END OF REPORT