

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: P924218

Luminaire Tested: DFN2DIP-4P4F0-080D030US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

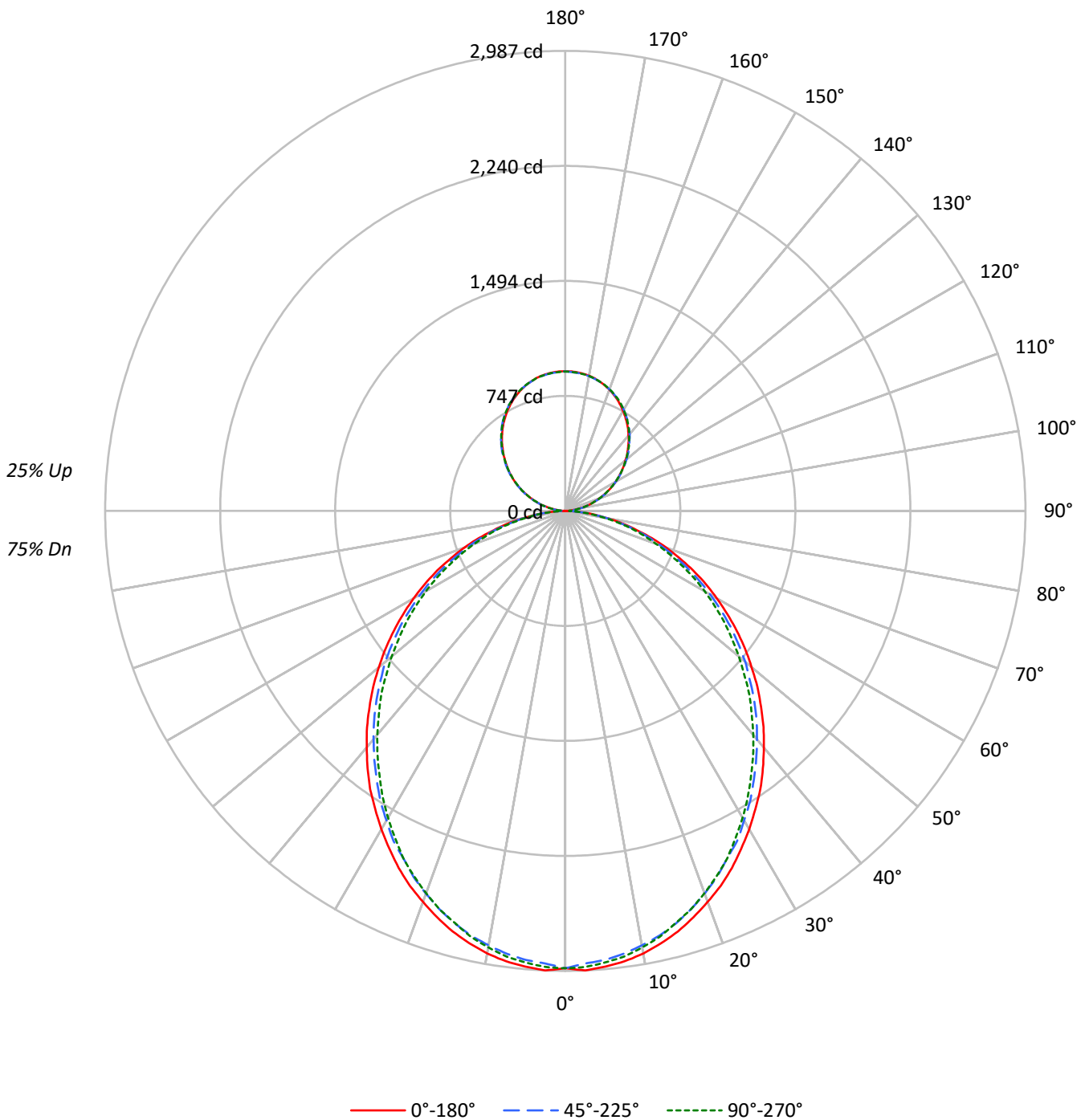
Test Method: LM-79-2019  
Report Number: P924218  
REPORT IS A COMBINATION OF REPORTS P899089 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-080D030US950-FLLFLL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10088.5 lumens  
Efficiency: N/A  
Efficacy: 92.7 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): 108.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
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				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	113	113	113	113	108	108	108	108	97	97	97	88	88	88	79	79	79	79	79	79	75
1	103	99	95	91	98	94	91	87	85	83	80	77	75	73	70	68	67	67	67	67	63
2	94	86	80	75	89	82	77	72	75	70	66	68	64	61	62	59	56	56	56	56	53
3	86	76	68	62	81	73	66	60	66	61	56	60	56	52	55	51	48	48	48	48	45
4	79	67	59	53	75	64	57	51	59	53	48	54	49	45	49	45	41	41	41	41	38
5	72	60	52	45	69	58	50	44	53	46	41	48	43	39	44	40	36	36	36	36	33
6	67	54	46	40	63	52	44	39	48	41	36	44	38	34	40	35	32	32	32	32	29
7	62	49	41	35	59	47	39	34	43	37	32	40	34	30	37	32	28	28	28	28	26
8	58	45	37	31	55	43	36	30	40	33	29	37	31	27	34	29	25	25	25	25	23
9	54	41	33	28	51	39	32	27	36	30	26	34	28	24	31	26	23	23	23	23	21
10	50	38	30	25	48	36	29	25	34	28	23	31	26	22	29	24	21	21	21	21	19

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1926	1926	1926
5°	1930	1900	1913
10°	1914	1875	1888
15°	1886	1845	1848
20°	1848	1803	1807
25°	1811	1752	1760
30°	1763	1705	1700
35°	1719	1649	1636
40°	1663	1593	1576
45°	1609	1537	1514
50°	1548	1478	1442
55°	1485	1409	1376
60°	1414	1328	1301
65°	1337	1244	1212
70°	1238	1142	1116
75°	1101	1020	1030
80°	937	864	861
85°	680	594	581

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1609 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	279.5	2.8
10°-20°	786.4	7.8
20°-30°	1155.7	11.5
30°-40°	1342.3	13.3
40°-50°	1340.6	13.3
50°-60°	1169.0	11.6
60°-70°	864.1	8.6
70°-80°	488.9	4.8
80°-90°	131.6	1.3
90°-100°	56.0	0.6
100°-110°	178.0	1.8
110°-120°	304.6	3.0
120°-130°	400.5	4.0
130°-140°	449.6	4.5
140°-150°	440.9	4.4
150°-160°	369.8	3.7
160°-170°	245.3	2.4
170°-180°	85.7	0.8
0°-30°	2221.6	22.0
0°-40°	3563.9	35.3
0°-60°	6073.6	60.2
0°-90°	7558.3	74.9
90°-120°	538.5	5.3
90°-150°	1829.5	18.1
90°-180°	2530.0	25.1
0°-180°	10088.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	1	10	27	25	26	10
95°	40	48	49	49	48	44
105°	164	166	168	169	169	173
115°	306	310	309	308	306	302
125°	445	451	449	447	446	397
135°	575	583	585	584	582	444
145°	698	704	708	709	706	436
155°	798	800	803	807	804	367
165°	868	868	868	873	869	245
175°	904	901	900	905	900	86
180°	905	905	905	905	905	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	0.9	9.8	26.7	25.1	25.9
92.5°	16.9	22.9	23.8	24.5	24.5
95°	39.9	47.5	48.8	48.8	47.5
97.5°	66.3	73.4	76.4	76.4	76.4
100°	96.8	103.1	105.3	105.3	104.6
102.5°	129.1	133.8	136.7	137.6	136.7
105°	164.3	166.5	168.1	169.4	169.4
107.5°	199.2	202.4	202.4	203.0	199.2
110°	233.1	237.5	237.5	237.5	235.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	269.6	274.3	273.4	271.2	269.6
115°	305.7	310.0	308.6	307.9	305.7
117.5°	341.3	347.4	343.5	341.3	339.1
120°	377.4	383.4	377.4	377.4	374.9
122.5°	410.1	417.8	413.9	411.7	410.1
125°	444.6	451.3	449.1	446.7	445.9
127.5°	478.0	486.5	483.6	480.2	478.0
130°	509.4	519.3	517.9	516.3	513.3
132.5°	544.6	552.3	552.8	549.0	546.8
135°	575.0	583.4	585.1	584.2	582.0
137.5°	608.7	615.6	617.0	616.5	613.1
140°	638.5	645.4	649.2	649.2	646.1
142.5°	669.1	675.9	678.1	679.0	675.9
145°	698.0	703.5	707.9	708.6	705.7
147.5°	724.0	730.8	734.0	735.4	732.4
150°	750.7	755.4	758.3	760.8	758.3
152.5°	774.5	779.0	782.9	785.9	782.9
155°	798.2	800.3	802.8	806.6	804.2
157.5°	818.6	820.2	821.7	827.1	823.3
160°	836.9	838.6	839.4	844.0	840.8
162.5°	853.8	853.8	854.7	859.8	856.0
165°	868.3	867.5	867.5	872.9	869.1
167.5°	881.4	878.9	878.9	884.4	880.5
170°	891.2	889.0	888.3	893.7	889.0
172.5°	898.0	895.9	895.0	900.5	895.9
175°	903.5	901.3	899.7	905.2	900.5
177.5°	906.5	904.3	902.7	907.3	902.7
180°	905.2	905.2	905.2	905.2	905.2



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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	11.61	12.75	12.32	13.48	14.34	11.16	12.30	11.87	13.03	13.90
	3H	13.29	14.32	14.02	15.06	15.96	12.80	13.83	13.53	14.57	15.47
	4H	13.90	14.87	14.64	15.62	16.52	13.40	14.37	14.15	15.12	16.03
	6H	14.32	15.21	15.07	15.97	16.89	13.82	14.71	14.57	15.47	16.39
	8H	14.43	15.28	15.20	16.06	16.99	13.93	14.78	14.69	15.56	16.49
	12H	14.49	15.30	15.26	16.08	17.03	13.98	14.80	14.75	15.57	16.52
4H	2H	12.10	13.07	12.85	13.82	14.73	11.75	12.72	12.49	13.47	14.37
	3H	14.00	14.81	14.76	15.59	16.52	13.59	14.40	14.35	15.19	16.11
	4H	14.73	15.47	15.50	16.25	17.21	14.31	15.04	15.08	15.83	16.78
	6H	15.27	15.90	16.06	16.71	17.68	14.83	15.47	15.62	16.28	17.24
	8H	15.43	16.02	16.22	16.83	17.80	14.99	15.58	15.78	16.39	17.36
	12H	15.52	16.05	16.33	16.88	17.86	15.07	15.60	15.88	16.43	17.41
8H	4H	14.95	15.55	15.74	16.35	17.33	14.57	15.17	15.37	15.98	16.95
	6H	15.60	16.09	16.42	16.94	17.92	15.22	15.71	16.04	16.56	17.53
	8H	15.83	16.27	16.66	17.11	18.10	15.43	15.87	16.27	16.72	17.71
	12H	15.98	16.36	16.81	17.20	18.25	15.56	15.95	16.40	16.79	17.84
12H	4H	14.95	15.49	15.76	16.31	17.29	14.58	15.12	15.40	15.95	16.93
	6H	15.63	16.07	16.47	16.92	17.91	15.26	15.70	16.10	16.55	17.54
	8H	15.89	16.28	16.73	17.12	18.16	15.51	15.90	16.35	16.74	17.78