

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: P921258

Luminaire Tested: DFN2DIP-4P2F0-040D020US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P921258  
REPORT IS A COMBINATION OF REPORTS P899015 AND P895899  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P2F0-040D020US940-FLLFLL  
Description: 2 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

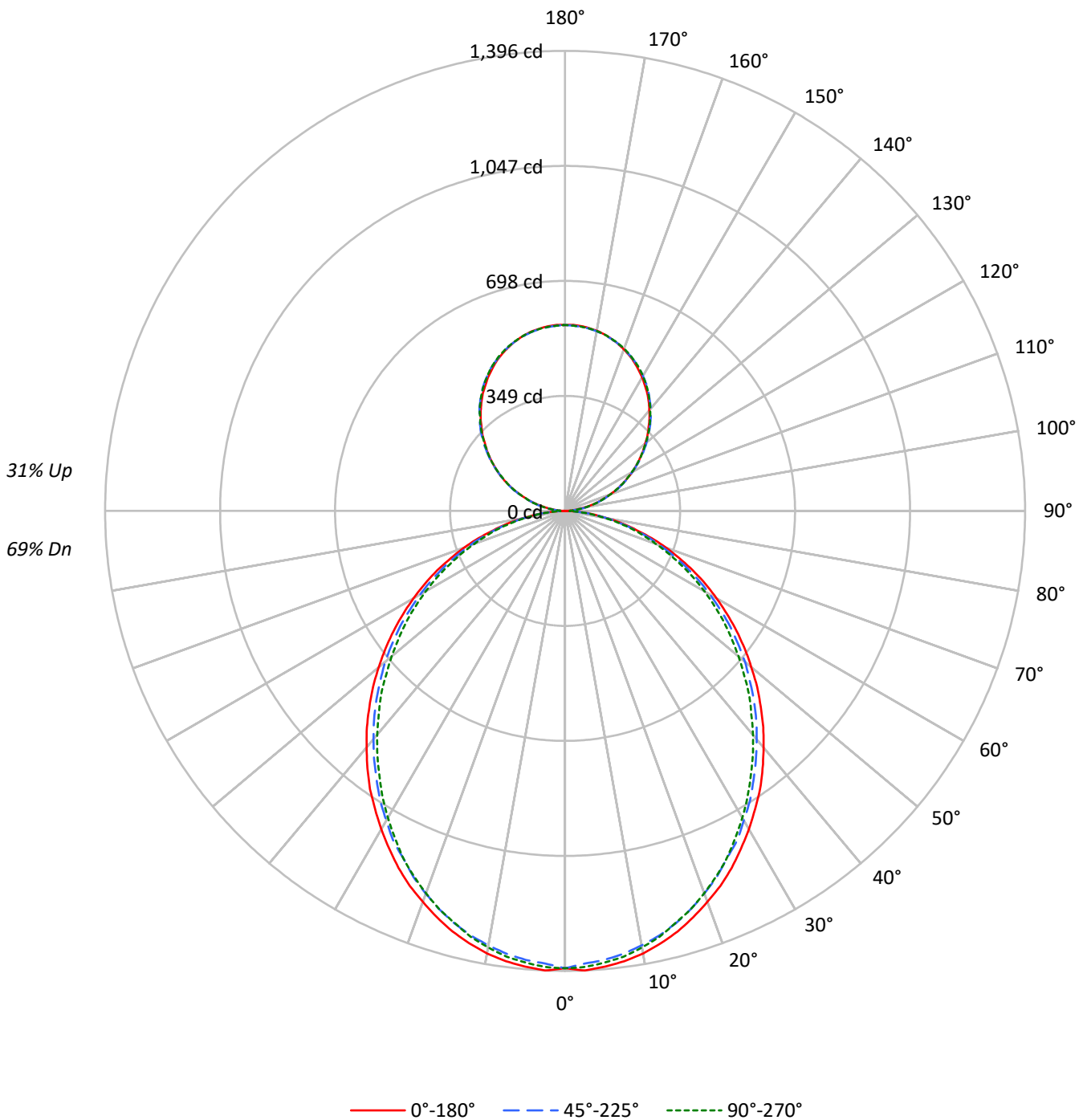
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5109.5 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.07' x L: 2.07' x H: 0.1')  
CIE Type: Semi-Direct

Input Watts (W): 56.1  
Input Voltage (V): 120  
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

TEST NUMBER: P921258  
CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFL

### Luminous Intensity Polar Plot





TEST NUMBER: P921258

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFLL

**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	112	112	112	112	106	106	106	106	94	94	94	83	83	83	74	74	74	69			
1	102	98	94	90	96	92	89	86	83	80	77	74	71	70	65	64	62	58			
2	93	85	79	74	88	81	75	70	72	68	64	65	61	58	57	55	52	49			
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	48	45	41			
4	78	67	58	52	73	63	56	50	57	51	46	51	46	42	46	42	39	35			
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	34	31			
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30	27			
7	61	48	40	34	58	46	39	33	42	35	31	38	33	29	34	30	26	24			
8	57	44	36	31	54	42	35	30	38	32	28	35	29	26	31	27	24	22			
9	53	40	33	27	50	39	31	26	35	29	25	32	27	23	29	25	21	19			
10	50	37	30	25	47	36	29	24	32	27	22	30	25	21	27	23	20	18			

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

	0°	45°	90°
0°	3475	3475	3475
5°	3474	3418	3444
10°	3439	3363	3391
15°	3381	3299	3313
20°	3306	3213	3233
25°	3231	3113	3141
30°	3138	3018	3026
35°	3050	2908	2904
40°	2943	2797	2788
45°	2836	2685	2669
50°	2719	2568	2531
55°	2595	2432	2404
60°	2455	2272	2258
65°	2301	2104	2086
70°	2105	1901	1898
75°	1838	1656	1718
80°	1512	1345	1390
85°	1013	841	865

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2836 cd/sqm



TEST NUMBER: P921258

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	130.6	2.6
10°-20°	367.5	7.2
20°-30°	540.1	10.6
30°-40°	627.3	12.3
40°-50°	626.6	12.3
50°-60°	546.3	10.7
60°-70°	403.9	7.9
70°-80°	228.5	4.5
80°-90°	61.9	1.2
90°-100°	34.9	0.7
100°-110°	110.9	2.2
110°-120°	189.8	3.7
120°-130°	249.6	4.9
130°-140°	280.2	5.5
140°-150°	274.7	5.4
150°-160°	230.4	4.5
160°-170°	152.8	3.0
170°-180°	53.4	1.0
0°-30°	1038.3	20.3
0°-40°	1665.6	32.6
0°-60°	2838.5	55.6
0°-90°	3532.8	69.1
90°-120°	335.6	6.6
90°-150°	1140.0	22.3
90°-180°	1577.0	30.9
0°-180°	5109.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1388	1388	1388	1388	1388	
5°	1388	1383	1368	1378	1376	132
15°	1321	1313	1296	1301	1295	372
25°	1196	1185	1162	1165	1162	550
35°	1032	1018	997	989	982	644
45°	840	830	810	796	790	648
55°	635	627	611	595	589	568
65°	428	420	407	395	388	424
75°	224	222	215	207	210	239
85°	55	53	52	48	47	61
90°	0	6	17	16	16	5
95°	25	30	30	30	30	28
105°	102	104	105	106	106	108
115°	190	193	192	192	190	188
125°	277	281	280	278	278	248
135°	358	364	364	364	363	277
145°	435	438	441	442	440	272
155°	497	499	500	503	501	229
165°	541	541	541	544	542	153
175°	563	562	561	564	561	53
180°	564	564	564	564	564	



TEST NUMBER: P921258

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1387.9	1387.9	1387.9	1387.9	1387.9
2.5°	1396.0	1389.3	1374.6	1387.9	1385.4
5°	1387.9	1382.6	1367.9	1378.5	1376.0
7.5°	1378.5	1370.6	1355.8	1366.6	1364.0
10°	1364.0	1354.6	1338.6	1349.2	1345.2
12.5°	1343.8	1335.9	1319.9	1326.6	1323.8
15°	1321.2	1313.2	1295.8	1301.2	1294.6
17.5°	1293.2	1285.2	1267.8	1274.4	1267.8
20°	1262.4	1254.5	1235.8	1239.7	1234.6
22.5°	1231.8	1219.8	1202.4	1202.4	1199.7
25°	1195.7	1185.1	1162.4	1165.0	1162.4
27.5°	1155.7	1146.3	1129.1	1125.1	1118.5
30°	1115.7	1105.0	1085.0	1081.0	1075.7
32.5°	1073.0	1065.1	1043.7	1035.6	1030.2
35°	1031.6	1018.3	996.9	988.9	982.2
37.5°	984.9	972.9	951.5	942.2	935.5
40°	936.9	926.1	904.7	892.9	887.5
42.5°	890.2	879.4	858.2	844.7	836.8
45°	839.5	830.2	810.0	795.5	790.1
47.5°	790.1	780.7	759.4	744.7	736.7
50°	738.0	731.3	712.7	693.9	687.2
52.5°	687.2	678.0	660.7	646.0	636.6
55°	635.3	627.2	611.3	595.2	588.6
57.5°	583.2	576.6	559.1	543.1	537.8
60°	531.1	525.8	507.2	492.5	488.5
62.5°	480.5	471.1	457.8	444.4	439.1
65°	428.5	420.4	407.1	395.0	388.4
67.5°	375.1	368.3	356.4	347.1	341.7
70°	325.7	320.3	308.3	298.9	293.6
72.5°	275.0	269.6	263.0	253.6	249.6
75°	224.2	221.6	214.8	206.9	209.6
77.5°	178.8	173.4	170.8	166.7	162.8
80°	133.5	132.1	129.4	125.5	122.8
82.5°	90.8	90.8	89.5	84.1	84.1
85°	54.7	53.4	52.1	48.0	46.7
87.5°	24.1	21.4	18.7	14.7	13.3
90°	0.5	6.2	16.7	15.6	16.1
92.5°	10.5	14.3	14.8	15.3	15.3
95°	24.8	29.6	30.4	30.4	29.6
97.5°	41.3	45.7	47.6	47.6	47.6
100°	60.4	64.3	65.6	65.6	65.1
102.5°	80.4	83.3	85.2	85.7	85.2
105°	102.4	103.7	104.8	105.6	105.6
107.5°	124.1	126.2	126.2	126.5	124.1
110°	145.3	147.9	147.9	147.9	146.6



TEST NUMBER: P921258

CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	168.0	170.9	170.4	169.0	168.0
115°	190.5	193.1	192.3	191.8	190.5
117.5°	212.8	216.5	214.1	212.8	211.3
120°	235.1	238.9	235.1	235.1	233.6
122.5°	255.6	260.3	258.0	256.6	255.6
125°	277.0	281.2	279.9	278.4	277.9
127.5°	297.9	303.2	301.3	299.3	297.9
130°	317.4	323.6	322.7	321.7	319.9
132.5°	339.4	344.2	344.5	342.1	340.7
135°	358.3	363.6	364.5	364.1	362.7
137.5°	379.3	383.6	384.5	384.1	382.1
140°	397.9	402.2	404.6	404.6	402.7
142.5°	417.0	421.2	422.6	423.0	421.2
145°	435.0	438.4	441.1	441.6	439.7
147.5°	451.1	455.4	457.4	458.2	456.4
150°	467.8	470.6	472.5	474.0	472.5
152.5°	482.6	485.4	487.9	489.7	487.9
155°	497.4	498.7	500.2	502.7	501.1
157.5°	510.1	511.1	512.0	515.4	513.0
160°	521.6	522.5	523.1	525.9	523.9
162.5°	532.1	532.1	532.5	535.8	533.4
165°	541.1	540.6	540.6	543.9	541.6
167.5°	549.2	547.7	547.7	551.1	548.8
170°	555.4	554.0	553.5	556.9	554.0
172.5°	559.6	558.2	557.8	561.2	558.2
175°	563.0	561.7	560.6	564.0	561.2
177.5°	564.9	563.6	562.5	565.3	562.5
180°	564.0	564.0	564.0	564.0	564.0



TEST NUMBER: P921258  
 CATALOG NUMBER: DFN2DIP-4P2F0-040D020US940-FLLFL

**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	13.07	14.13	13.84	14.93	15.90	12.62	13.69	13.40	14.48	15.45
	3H	14.72	15.68	15.51	16.48	17.48	14.23	15.19	15.02	15.99	16.99
	4H	15.30	16.21	16.11	17.02	18.03	14.81	15.71	15.61	16.53	17.54
	6H	15.70	16.53	16.51	17.35	18.37	15.20	16.03	16.01	16.85	17.87
	8H	15.80	16.59	16.62	17.43	18.46	15.30	16.09	16.12	16.93	17.95
	12H	15.84	16.60	16.68	17.44	18.49	15.34	16.09	16.17	16.93	17.98
4H	2H	13.54	14.44	14.35	15.26	16.27	13.18	14.09	13.99	14.90	15.91
	3H	15.40	16.15	16.22	17.00	18.03	14.99	15.74	15.81	16.59	17.62
	4H	16.10	16.79	16.94	17.64	18.69	15.68	16.36	16.51	17.21	18.26
	6H	16.61	17.20	17.46	18.07	19.13	16.18	16.77	17.03	17.64	18.70
	8H	16.75	17.31	17.60	18.17	19.24	16.31	16.87	17.17	17.73	18.81
	12H	16.82	17.32	17.70	18.21	19.29	16.37	16.87	17.25	17.76	18.84
8H	4H	16.30	16.86	17.16	17.72	18.79	15.92	16.48	16.78	17.34	18.42
	6H	16.91	17.37	17.80	18.28	19.35	16.53	16.99	17.41	17.90	18.97
	8H	17.12	17.53	18.01	18.43	19.52	16.73	17.14	17.62	18.04	19.13
	12H	17.25	17.61	18.14	18.50	19.64	16.84	17.20	17.73	18.09	19.23
12H	4H	16.29	16.79	17.17	17.68	18.76	15.92	16.42	16.80	17.31	18.39
	6H	16.94	17.35	17.83	18.25	19.34	16.57	16.97	17.46	17.88	18.96
	8H	17.17	17.53	18.07	18.43	19.57	16.79	17.15	17.69	18.05	19.19