

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: P922265

Luminaire Tested: DFN2DIP-PN4F0-040D100US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922265
REPORT IS A COMBINATION OF REPORTS P901237 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D100US940-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

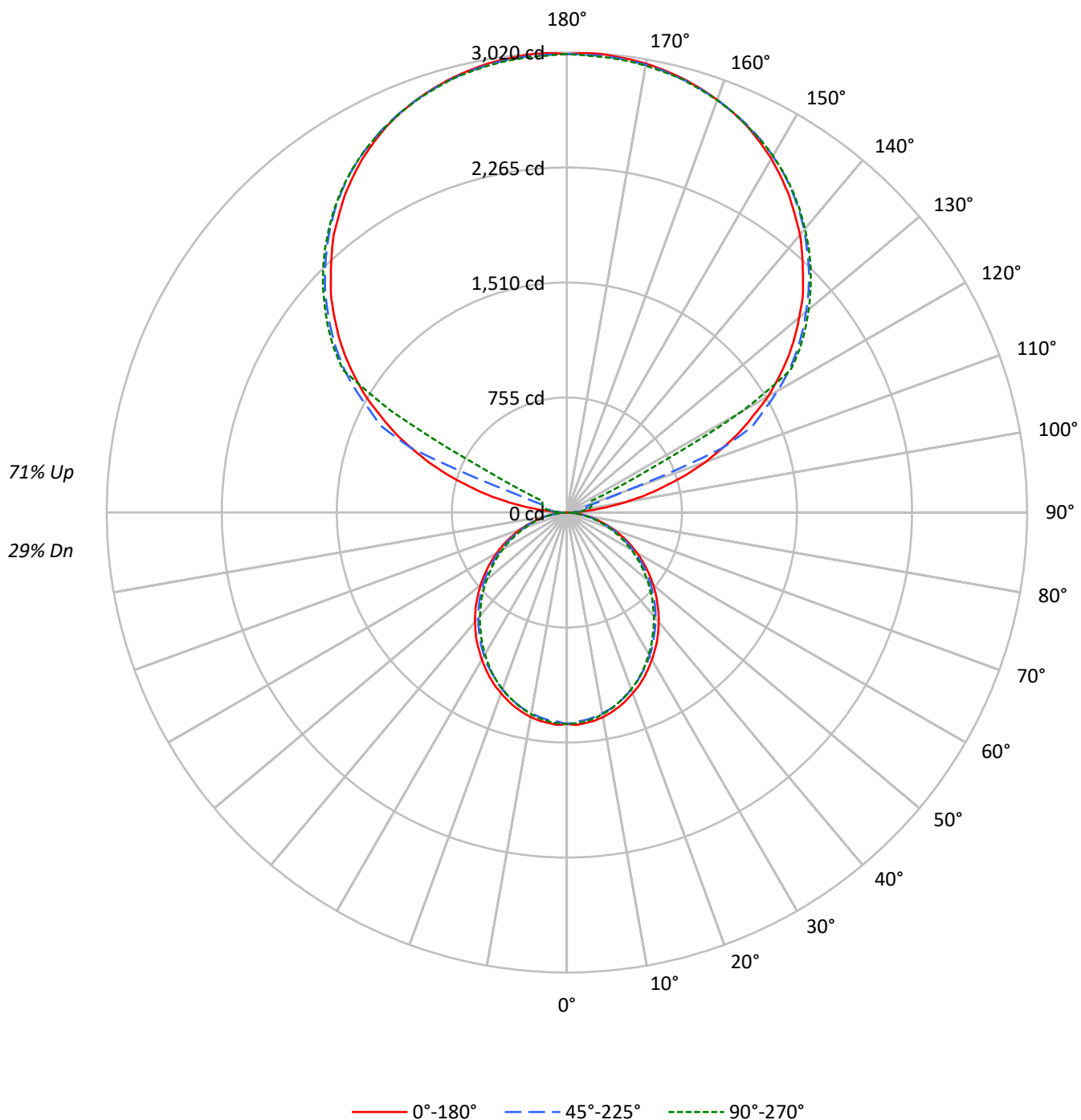
Lumens per Lamp: N/A
Luminaire Lumens: 12359.2 lumens
Efficiency: N/A
Efficacy: 114.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	50	30	10
RCR																				
0	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36	29		
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31	24		
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26	20		
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22	17		
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19	15		
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16	13		
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14	11		
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13	10		
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11	9		
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	8		
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	7		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1013	1013	1013
5°	1015	999	1006
10°	1007	986	992
15°	992	970	971
20°	972	947	950
25°	952	920	925
30°	927	895	893
35°	903	866	859
40°	874	836	827
45°	845	806	794
50°	813	775	756
55°	780	739	722
60°	743	696	682
65°	702	652	635
70°	650	598	584
75°	578	533	538
80°	491	450	448
85°	355	307	300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1605 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	1.1
10°-20°	367.5	3.0
20°-30°	540.1	4.4
30°-40°	627.3	5.1
40°-50°	626.6	5.1
50°-60°	546.3	4.4
60°-70°	403.9	3.3
70°-80°	228.5	1.8
80°-90°	65.6	0.5
90°-100°	99.2	0.8
100°-110°	369.9	3.0
110°-120°	981.1	7.9
120°-130°	1627.2	13.2
130°-140°	1728.5	14.0
140°-150°	1606.5	13.0
150°-160°	1291.5	10.5
160°-170°	832.2	6.7
170°-180°	286.4	2.3
0°-30°	1038.3	8.4
0°-40°	1665.6	13.5
0°-60°	2838.5	23.0
0°-90°	3536.5	28.6
90°-120°	1450.3	11.7
90°-150°	6412.5	51.9
90°-180°	8823.0	71.4
0°-180°	12359.2	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°	2	26	43	55	59	11
95°	141	70	85	96	94	168
105°	662	727	133	157	166	707
115°	1252	1289	1344	335	179	1233
125°	1770	1799	1840	1855	1862	1579
135°	2191	2226	2245	2267	2263	1692
145°	2541	2539	2576	2591	2580	1589
155°	2798	2779	2805	2818	2800	1289
165°	2948	2935	2942	2957	2942	833
175°	3016	3001	3005	3020	2999	287
180°	3009	3009	3009	3009	3009	

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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°	2.1	26.1	43.4	54.6	58.7
92.5°	54.6	45.7	52.3	56.6	58.7
95°	141.4	69.6	84.8	95.9	93.6
97.5°	254.7	76.2	110.9	117.6	119.8
100°	385.6	87.1	124.1	141.4	145.9
102.5°	529.1	524.9	128.5	152.3	159.0
105°	662.0	727.4	133.0	156.7	165.5
107.5°	816.6	870.9	137.3	161.1	169.9
110°	964.7	1010.3	381.1	163.5	171.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1104.1	1143.2	1106.3	167.6	174.3
115°	1252.1	1289.1	1343.6	335.4	178.7
117.5°	1380.5	1424.1	1461.2	1149.7	579.3
120°	1524.4	1556.9	1596.3	1622.4	1328.4
122.5°	1646.2	1681.1	1724.7	1737.7	1740.0
125°	1770.3	1798.8	1840.1	1855.4	1861.8
127.5°	1883.6	1914.1	1946.9	1968.6	1970.7
130°	1990.3	2025.3	2049.1	2073.0	2071.0
132.5°	2099.2	2127.6	2151.4	2171.0	2169.0
135°	2190.8	2225.6	2245.1	2267.0	2262.6
137.5°	2286.4	2312.6	2334.5	2356.3	2349.7
140°	2380.0	2397.6	2421.4	2441.1	2430.2
142.5°	2458.6	2473.9	2502.1	2519.3	2508.6
145°	2541.4	2539.1	2576.1	2591.3	2580.4
147.5°	2613.0	2606.6	2643.5	2654.4	2645.9
150°	2682.8	2667.6	2702.5	2715.4	2704.6
152.5°	2741.5	2724.2	2756.8	2769.9	2754.7
155°	2798.2	2778.7	2804.9	2817.8	2800.5
157.5°	2843.9	2826.6	2846.3	2861.5	2843.9
160°	2883.3	2870.1	2883.3	2896.2	2880.9
162.5°	2917.9	2904.9	2915.8	2931.1	2911.4
165°	2948.4	2935.4	2941.9	2957.2	2941.9
167.5°	2972.4	2959.2	2966.0	2981.3	2961.5
170°	2992.0	2978.9	2983.3	2998.6	2978.9
172.5°	3005.0	2992.0	2996.5	3011.8	2992.0
175°	3015.9	3000.6	3005.0	3020.3	2998.6
177.5°	3020.3	3005.0	3007.4	3022.6	3002.9
180°	3009.4	3009.4	3009.4	3009.4	3009.4

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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	4.92	5.61	6.04	6.73	8.28	4.48	5.17	5.60	6.29	7.84
	3H	6.57	7.19	7.70	8.32	9.88	6.08	6.71	7.21	7.83	9.39
	4H	7.15	7.74	8.29	8.87	10.44	6.66	7.26	7.80	8.38	9.95
	6H	7.54	8.09	8.69	9.22	10.80	7.05	7.60	8.20	8.72	10.30
	8H	7.64	8.16	8.80	9.31	10.88	7.15	7.67	8.30	8.81	10.39
	12H	7.69	8.18	8.84	9.32	10.91	7.19	7.68	8.34	8.82	10.41
4H	2H	5.36	5.95	6.51	7.08	8.64	5.01	5.60	6.15	6.72	8.29
	3H	7.21	7.71	8.37	8.86	10.44	6.81	7.31	7.96	8.45	10.04
	4H	7.92	8.38	9.08	9.52	11.12	7.51	7.96	8.66	9.10	10.70
	6H	8.43	8.82	9.59	9.98	11.57	8.01	8.40	9.17	9.56	11.15
	8H	8.58	8.94	9.74	10.10	11.70	8.15	8.51	9.31	9.67	11.27
	12H	8.65	8.98	9.82	10.14	11.75	8.20	8.53	9.38	9.70	11.31
8H	4H	8.11	8.47	9.27	9.62	11.23	7.74	8.10	8.89	9.25	10.86
	6H	8.73	9.03	9.91	10.23	11.83	8.36	8.66	9.54	9.85	11.46
	8H	8.96	9.22	10.14	10.39	12.01	8.57	8.83	9.76	10.01	11.63
	12H	9.08	9.31	10.27	10.48	12.14	8.68	8.91	9.87	10.08	11.74
12H	4H	8.08	8.41	9.26	9.58	11.19	7.72	8.05	8.90	9.22	10.83
	6H	8.76	9.02	9.95	10.20	11.82	8.40	8.66	9.58	9.83	11.46
	8H	9.00	9.23	10.19	10.40	12.06	8.63	8.86	9.82	10.03	11.68

END OF REPORT