

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: P921311

Luminaire Tested: DFN2DIP-4P3F0-040D020US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921311
REPORT IS A COMBINATION OF REPORTS P900553 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D020US940-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

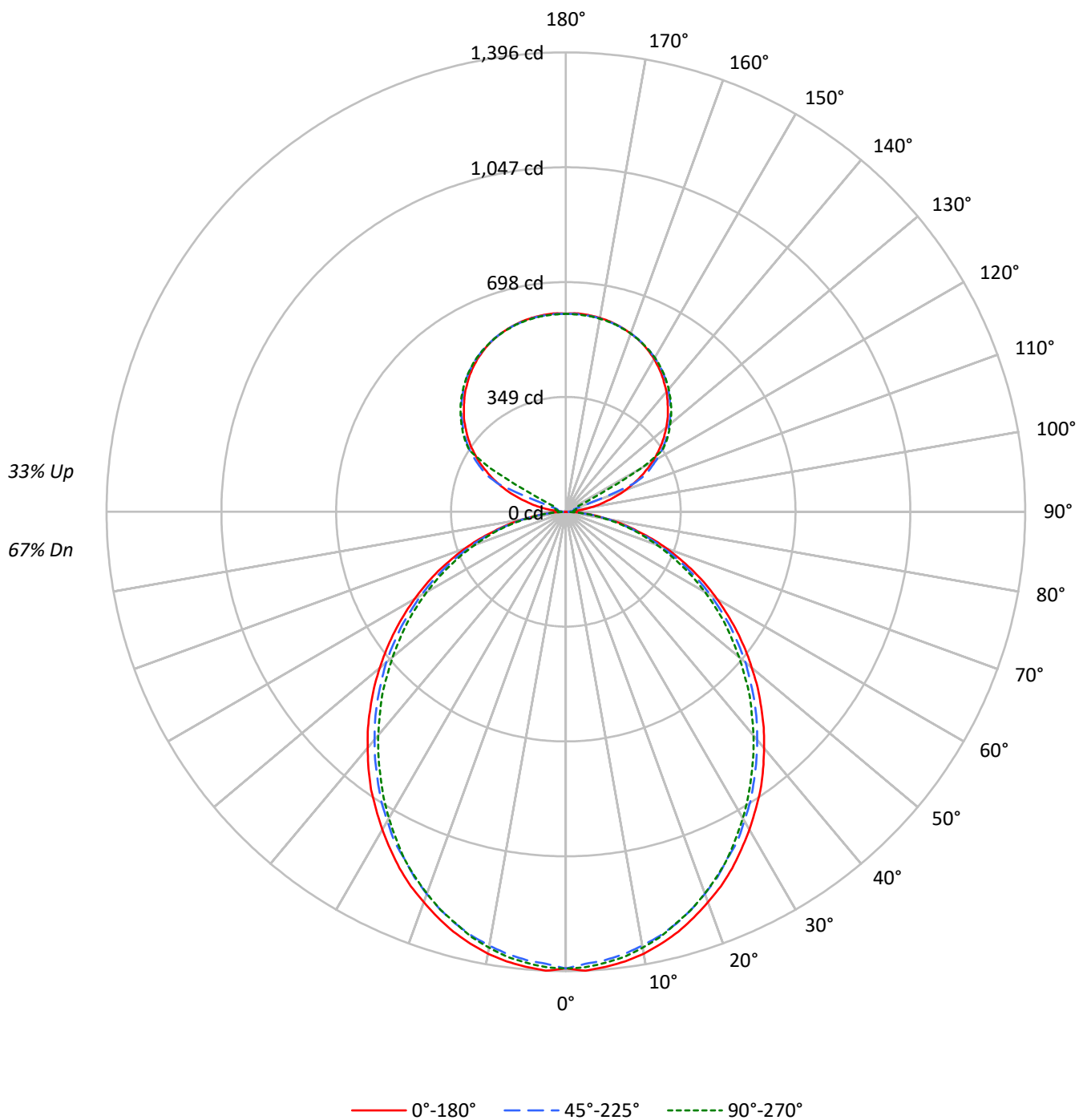
Lumens per Lamp: N/A
Luminaire Lumens: 5296.8 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 53
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

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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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1582	1582	1582
5°	1583	1559	1570
10°	1569	1537	1548
15°	1545	1510	1514
20°	1513	1474	1480
25°	1481	1431	1440
30°	1441	1391	1389
35°	1403	1344	1336
40°	1357	1296	1285
45°	1310	1248	1233
50°	1260	1198	1173
55°	1206	1140	1118
60°	1146	1071	1054
65°	1080	999	979
70°	996	912	898
75°	880	807	823
80°	740	673	680
85°	521	446	445

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1310 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	130.6	2.5
10°-20°	367.5	6.9
20°-30°	540.1	10.2
30°-40°	627.3	11.8
40°-50°	626.6	11.8
50°-60°	546.3	10.3
60°-70°	403.9	7.6
70°-80°	228.5	4.3
80°-90°	61.4	1.2
90°-100°	19.8	0.4
100°-110°	74.0	1.4
110°-120°	196.2	3.7
120°-130°	325.4	6.1
130°-140°	345.7	6.5
140°-150°	321.3	6.1
150°-160°	258.3	4.9
160°-170°	166.4	3.1
170°-180°	57.3	1.1
0°-30°	1038.3	19.6
0°-40°	1665.6	31.4
0°-60°	2838.5	53.6
0°-90°	3532.3	66.7
90°-120°	290.0	5.5
90°-150°	1282.5	24.2
90°-180°	1765.0	33.3
0°-180°	5296.8	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	5	9	11	12	5
95°	28	14	17	19	19	33
105°	132	145	27	31	33	141
115°	250	258	269	67	36	247
125°	354	360	368	371	372	316
135°	438	445	449	453	452	338
145°	508	508	515	518	516	318
155°	560	556	561	564	560	258
165°	590	587	588	592	588	167
175°	603	600	601	604	600	57
180°	602	602	602	602	602	

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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°	0.4	5.3	8.6	10.9	11.8
92.5°	10.9	9.2	10.4	11.3	11.8
95°	28.3	13.9	16.9	19.2	18.7
97.5°	50.9	15.2	22.2	23.5	24.0
100°	77.1	17.4	24.8	28.3	29.2
102.5°	105.8	105.0	25.7	30.5	31.8
105°	132.4	145.4	26.6	31.3	33.1
107.5°	163.4	174.2	27.5	32.2	34.0
110°	193.0	202.1	76.2	32.7	34.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	220.8	228.6	221.2	33.5	34.9
115°	250.4	257.8	268.8	67.1	35.8
117.5°	276.1	284.8	292.2	230.0	115.8
120°	304.9	311.4	319.2	324.5	265.6
122.5°	329.2	336.2	344.9	347.5	348.0
125°	354.1	359.7	368.0	371.0	372.4
127.5°	376.7	382.8	389.4	393.7	394.1
130°	398.1	405.0	409.8	414.6	414.2
132.5°	419.8	425.5	430.3	434.2	433.8
135°	438.2	445.1	449.0	453.4	452.5
137.5°	457.3	462.5	466.9	471.3	469.9
140°	476.0	479.6	484.3	488.2	486.1
142.5°	491.7	494.8	500.4	503.9	501.7
145°	508.3	507.8	515.2	518.3	516.1
147.5°	522.6	521.3	528.7	530.8	529.1
150°	536.5	533.5	540.5	543.1	540.9
152.5°	548.3	544.8	551.3	554.0	550.9
155°	559.6	555.7	561.0	563.6	560.1
157.5°	568.8	565.3	569.3	572.3	568.8
160°	576.7	574.0	576.7	579.3	576.2
162.5°	583.5	580.9	583.2	586.2	582.3
165°	589.7	587.1	588.4	591.5	588.4
167.5°	594.5	591.8	593.2	596.3	592.3
170°	598.4	595.8	596.6	599.7	595.8
172.5°	601.0	598.4	599.3	602.4	598.4
175°	603.2	600.1	601.0	604.0	599.7
177.5°	604.0	601.0	601.5	604.5	600.6
180°	601.9	601.9	601.9	601.9	601.9

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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	10.24	11.28	11.04	12.10	13.11	9.80	10.83	10.60	11.66	12.67
	3H	11.91	12.84	12.73	13.67	14.71	11.42	12.35	12.23	13.18	14.22
	4H	12.51	13.38	13.34	14.22	15.27	12.01	12.89	12.84	13.73	14.78
	6H	12.91	13.72	13.75	14.57	15.63	12.41	13.22	13.25	14.07	15.13
	8H	13.02	13.79	13.87	14.66	15.72	12.52	13.29	13.37	14.15	15.22
	12H	13.07	13.81	13.93	14.67	15.76	12.56	13.30	13.42	14.16	15.25
4H	2H	10.72	11.60	11.56	12.44	13.49	10.37	11.24	11.20	12.08	13.13
	3H	12.60	13.33	13.44	14.20	15.27	12.19	12.92	13.04	13.80	14.86
	4H	13.32	13.98	14.17	14.85	15.95	12.89	13.56	13.75	14.43	15.52
	6H	13.84	14.41	14.71	15.31	16.40	13.40	13.98	14.28	14.88	15.97
	8H	13.99	14.53	14.87	15.42	16.53	13.55	14.09	14.43	14.98	16.09
	12H	14.07	14.55	14.96	15.46	16.58	13.62	14.10	14.52	15.01	16.13
8H	4H	13.52	14.06	14.40	14.95	16.06	13.15	13.68	14.02	14.57	15.68
	6H	14.15	14.60	15.06	15.53	16.64	13.77	14.22	14.68	15.15	16.26
	8H	14.37	14.77	15.29	15.69	16.82	13.98	14.38	14.90	15.30	16.43
	12H	14.51	14.86	15.43	15.78	16.95	14.10	14.45	15.02	15.36	16.54
12H	4H	13.52	14.00	14.41	14.91	16.03	13.15	13.63	14.04	14.54	15.66
	6H	14.18	14.58	15.10	15.50	16.63	13.81	14.21	14.73	15.13	16.26
	8H	14.43	14.78	15.35	15.70	16.87	14.05	14.40	14.97	15.31	16.49