

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: P910463

Luminaire Tested: DFN2DIP-4P4F0-030D040US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910463
REPORT IS A COMBINATION OF REPORTS P900611 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-030D040US850-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

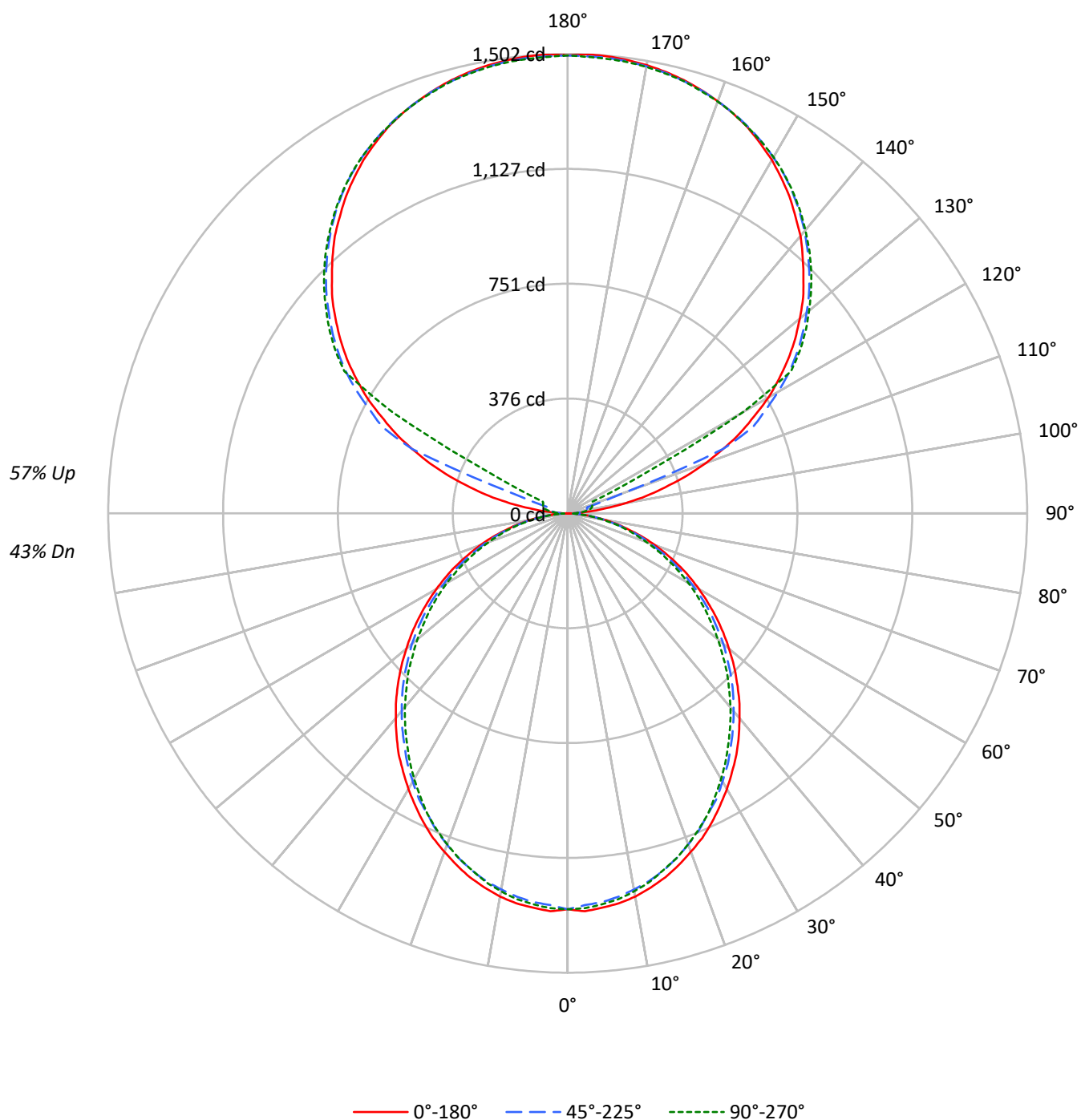
Lumens per Lamp: N/A
Luminaire Lumens: 7685.4 lumens
Efficiency: N/A
Efficacy: 131.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 58.5
Input Voltage (V):
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: P910463

CATALOG NUMBER: DFN2DIP-4P4F0-030D040US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910463

CATALOG NUMBER: DFN2DIP-4P4F0-030D040US850-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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	840	840	840
5°	841	828	834
10°	834	818	823
15°	822	804	806
20°	806	786	788
25°	789	764	767
30°	769	743	741
35°	749	719	713
40°	725	694	687
45°	701	670	660
50°	675	644	629
55°	648	614	600
60°	617	579	567
65°	583	542	528
70°	540	498	487
75°	480	445	449
80°	408	377	376
85°	296	259	253

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 772 cd/sqm

TEST NUMBER: P910463

CATALOG NUMBER: DFN2DIP-4P4F0-030D040US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.8	1.6
10°-20°	342.8	4.5
20°-30°	503.8	6.6
30°-40°	585.2	7.6
40°-50°	584.4	7.6
50°-60°	509.6	6.6
60°-70°	376.7	4.9
70°-80°	213.1	2.8
80°-90°	58.9	0.8
90°-100°	49.4	0.6
100°-110°	184.0	2.4
110°-120°	488.1	6.4
120°-130°	809.5	10.5
130°-140°	859.9	11.2
140°-150°	799.2	10.4
150°-160°	642.5	8.4
160°-170°	414.0	5.4
170°-180°	142.5	1.9
0°-30°	968.5	12.6
0°-40°	1553.6	20.2
0°-60°	2647.7	34.5
0°-90°	3296.4	42.9
90°-120°	721.5	9.4
90°-150°	3190.0	41.5
90°-180°	4389.0	57.1
0°-180°	7685.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1294	1294	1294	1294	1294	
5°	1294	1290	1276	1286	1283	123
15°	1232	1225	1209	1214	1208	347
25°	1115	1106	1084	1087	1084	513
35°	962	950	930	922	916	601
45°	783	774	756	742	737	604
55°	593	585	570	555	549	530
65°	400	392	380	368	362	395
75°	209	207	200	193	196	223
85°	51	50	49	45	44	57
90°	1	13	22	27	29	7
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

TEST NUMBER: P910463

CATALOG NUMBER: DFN2DIP-4P4F0-030D040US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1294.5	1294.5	1294.5	1294.5	1294.5
2.5°	1302.1	1295.9	1282.1	1294.5	1292.2
5°	1294.5	1289.7	1275.9	1285.9	1283.4
7.5°	1285.9	1278.5	1264.7	1274.8	1272.2
10°	1272.2	1263.5	1248.6	1258.5	1254.8
12.5°	1253.5	1246.1	1231.2	1237.3	1234.9
15°	1232.3	1225.0	1208.7	1213.7	1207.5
17.5°	1206.1	1198.8	1182.5	1188.7	1182.5
20°	1177.5	1170.1	1152.7	1156.4	1151.5
22.5°	1149.0	1137.8	1121.5	1121.5	1119.0
25°	1115.3	1105.5	1084.3	1086.7	1084.3
27.5°	1077.9	1069.2	1053.1	1049.4	1043.2
30°	1040.7	1030.7	1012.1	1008.3	1003.3
32.5°	1000.9	993.4	973.5	965.9	960.9
35°	962.3	949.9	929.9	922.4	916.1
37.5°	918.7	907.5	887.5	878.8	872.6
40°	873.9	863.9	843.9	832.9	827.9
42.5°	830.3	820.3	800.5	787.9	780.5
45°	783.1	774.3	755.6	741.9	736.9
47.5°	736.9	728.3	708.3	694.6	687.1
50°	688.4	682.1	664.7	647.3	641.1
52.5°	641.1	632.4	616.3	602.5	593.8
55°	592.6	585.1	570.1	555.3	549.1
57.5°	544.0	537.8	521.6	506.6	501.6
60°	495.4	490.5	473.1	459.3	455.7
62.5°	448.1	439.4	427.0	414.5	409.6
65°	399.7	392.1	379.7	368.5	362.3
67.5°	349.9	343.6	332.4	323.7	318.7
70°	303.8	298.8	287.6	278.8	273.9
72.5°	256.5	251.4	245.2	236.5	232.9
75°	209.0	206.7	200.4	193.0	195.5
77.5°	166.8	161.8	159.3	155.6	151.9
80°	124.5	123.2	120.7	117.0	114.6
82.5°	84.6	84.6	83.5	78.4	78.4
85°	51.0	49.8	48.6	44.8	43.6
87.5°	22.4	20.0	17.4	13.8	12.4
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

TEST NUMBER: P910463

CATALOG NUMBER: DFN2DIP-4P4F0-030D040US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	5.99	6.79	7.01	7.82	9.18	5.55	6.35	6.56	7.37	8.74
	3H	7.65	8.37	8.68	9.40	10.79	7.16	7.88	8.19	8.91	10.30
	4H	8.24	8.92	9.28	9.96	11.35	7.75	8.43	8.78	9.46	10.86
	6H	8.64	9.27	9.69	10.31	11.72	8.14	8.77	9.19	9.81	11.22
	8H	8.75	9.34	9.80	10.40	11.80	8.24	8.84	9.30	9.90	11.30
	12H	8.79	9.36	9.85	10.41	11.84	8.29	8.85	9.34	9.90	11.33
4H	2H	6.44	7.12	7.49	8.16	9.56	6.09	6.77	7.13	7.81	9.20
	3H	8.31	8.88	9.36	9.94	11.35	7.90	8.47	8.96	9.54	10.95
	4H	9.03	9.55	10.09	10.60	12.04	8.60	9.12	9.66	10.18	11.61
	6H	9.54	9.99	10.61	11.07	12.50	9.11	9.56	10.18	10.64	12.07
	8H	9.70	10.11	10.76	11.18	12.63	9.26	9.68	10.33	10.75	12.19
	12H	9.77	10.15	10.86	11.23	12.68	9.32	9.70	10.41	10.78	12.23
8H	4H	9.22	9.64	10.29	10.71	12.15	8.84	9.26	9.91	10.33	11.77
	6H	9.86	10.20	10.95	11.31	12.75	9.47	9.82	10.56	10.93	12.37
	8H	10.08	10.38	11.18	11.48	12.94	9.69	9.99	10.79	11.09	12.54
	12H	10.21	10.48	11.31	11.57	13.07	9.80	10.07	10.90	11.16	12.66
12H	4H	9.20	9.58	10.29	10.67	12.11	8.84	9.21	9.92	10.30	11.75
	6H	9.89	10.19	10.98	11.28	12.74	9.51	9.82	10.61	10.91	12.37
	8H	10.13	10.39	11.23	11.49	12.98	9.75	10.02	10.85	11.11	12.61

END OF REPORT