

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: P911352

Luminaire Tested: DFN2DIP-PN4F0-040D100US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911352
REPORT IS A COMBINATION OF REPORTS P899717 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D100US850-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

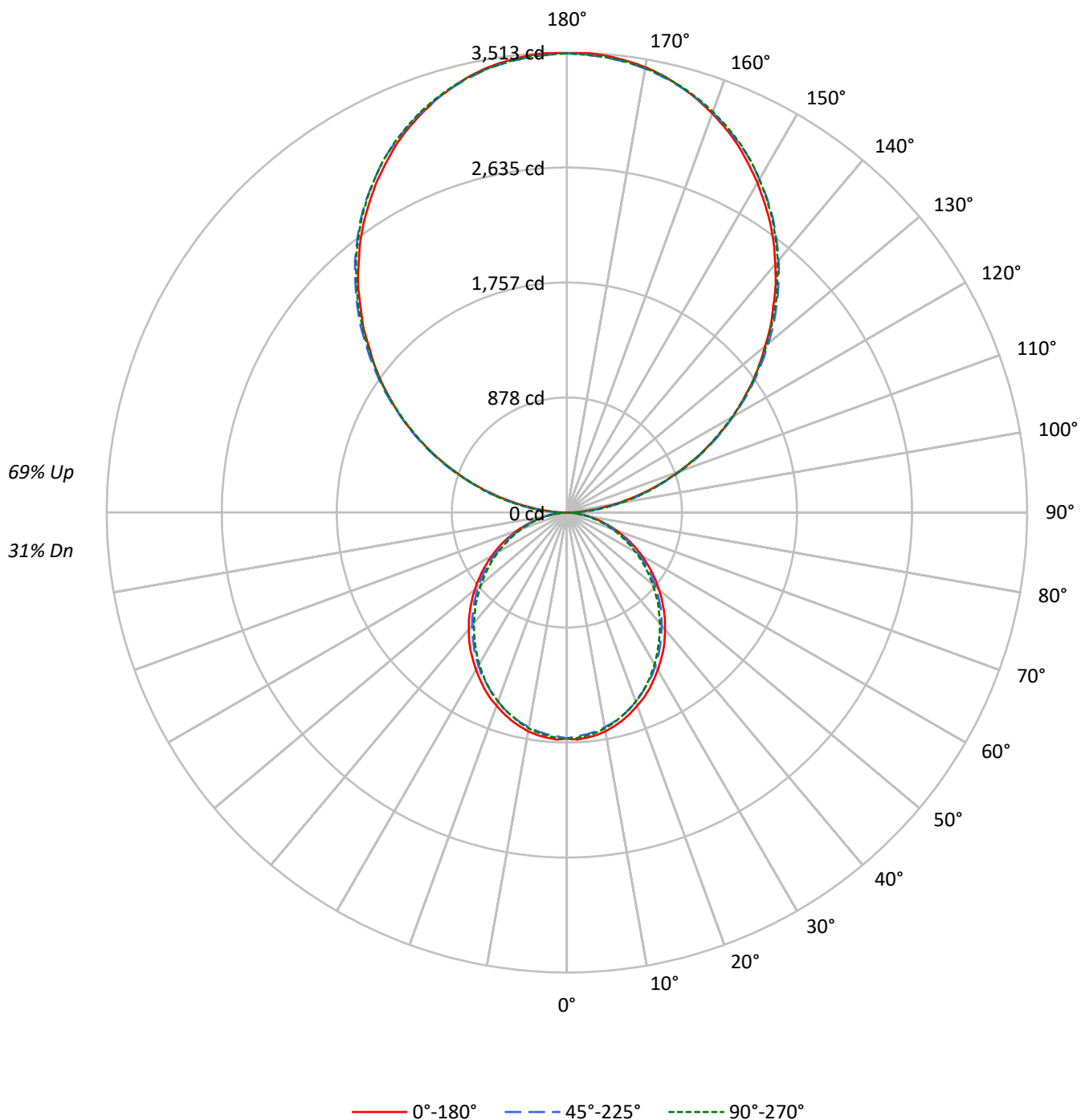
Lumens per Lamp: N/A
Luminaire Lumens: 14206.3 lumens
Efficiency: N/A
Efficacy: 131.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

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

TEST NUMBER: P911352

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US850-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P911352

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US850-FLLFL

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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	61	60	48	47	46	34	33	33
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	27	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	54	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1260	1260	1260
5°	1262	1243	1251
10°	1252	1226	1234
15°	1233	1206	1208
20°	1208	1178	1181
25°	1184	1145	1150
30°	1153	1114	1110
35°	1123	1077	1069
40°	1087	1040	1029
45°	1051	1003	988
50°	1012	964	941
55°	970	919	897
60°	924	866	848
65°	873	810	789
70°	808	743	726
75°	718	663	668
80°	610	559	557
85°	441	382	373

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2747 cd/sqm

TEST NUMBER: P911352

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	1.1
10°-20°	457.1	3.2
20°-30°	671.7	4.7
30°-40°	780.2	5.5
40°-50°	779.2	5.5
50°-60°	679.5	4.8
60°-70°	502.3	3.5
70°-80°	284.2	2.0
80°-90°	85.0	0.6
90°-100°	217.0	1.5
100°-110°	689.6	4.9
110°-120°	1180.1	8.3
120°-130°	1552.0	10.9
130°-140°	1742.1	12.3
140°-150°	1708.3	12.0
150°-160°	1433.0	10.1
160°-170°	950.4	6.7
170°-180°	332.2	2.3
0°-30°	1291.3	9.1
0°-40°	2071.5	14.6
0°-60°	3530.2	24.8
0°-90°	4401.6	31.0
90°-120°	2086.7	14.7
90°-150°	7089.1	49.9
90°-180°	9805.0	69.0
0°-180°	14206.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	3	38	104	97	100	14
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1722	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2255	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3101	3111	3126	3116	1424
165°	3365	3361	3361	3383	3368	949
175°	3501	3493	3486	3507	3489	333
180°	3507	3507	3507	3507	3507	

TEST NUMBER: P911352

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US850-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	3.2	38.0	103.6	97.3	100.5
92.5°	65.5	88.8	92.0	95.2	95.2
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.1	529.8	532.9	529.8
105°	636.6	645.0	651.3	656.6	656.6
107.5°	771.9	784.6	784.6	786.7	771.9
110°	903.1	919.9	919.9	919.9	911.5

TEST NUMBER: P911352

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.6	1059.5	1051.0	1044.7
115°	1184.3	1201.2	1195.9	1192.7	1184.3
117.5°	1322.8	1346.1	1331.2	1322.8	1314.3
120°	1462.3	1485.6	1462.3	1462.3	1452.9
122.5°	1589.2	1618.8	1604.1	1595.6	1589.2
125°	1722.5	1748.9	1740.5	1730.9	1727.8
127.5°	1852.6	1885.3	1873.7	1861.0	1852.6
130°	1974.1	2012.2	2007.0	2000.5	1989.0
132.5°	2110.5	2140.1	2142.3	2127.5	2119.0
135°	2227.9	2260.7	2267.0	2263.9	2255.4
137.5°	2359.1	2385.5	2390.8	2388.7	2375.9
140°	2474.3	2500.7	2515.5	2515.5	2503.9
142.5°	2592.7	2619.1	2627.6	2630.8	2619.1
145°	2704.7	2725.9	2742.9	2746.0	2734.4
147.5°	2805.2	2831.7	2844.4	2849.7	2838.0
150°	2908.9	2926.9	2938.5	2947.9	2938.5
152.5°	3000.8	3018.8	3033.7	3045.3	3033.7
155°	3092.9	3101.3	3110.9	3125.6	3116.1
157.5°	3172.2	3178.5	3183.8	3204.9	3190.1
160°	3243.0	3249.4	3252.5	3270.4	3257.8
162.5°	3308.6	3308.6	3311.7	3331.8	3317.0
165°	3364.6	3361.4	3361.4	3382.6	3367.8
167.5°	3415.4	3405.8	3405.8	3427.0	3412.2
170°	3453.4	3445.0	3441.8	3463.0	3445.0
172.5°	3479.8	3471.4	3468.2	3489.4	3471.4
175°	3501.0	3492.6	3486.3	3507.3	3489.4
177.5°	3512.6	3504.2	3497.8	3515.8	3497.8
180°	3507.3	3507.3	3507.3	3507.3	3507.3

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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	6.00	6.71	7.10	7.81	9.33	5.56	6.27	6.66	7.37	8.89
	3H	7.65	8.29	8.76	9.40	10.93	7.16	7.80	8.28	8.91	10.45
	4H	8.23	8.84	9.36	9.95	11.49	7.74	8.35	8.87	9.46	11.00
	6H	8.63	9.18	9.76	10.30	11.85	8.13	8.69	9.27	9.81	11.36
	8H	8.73	9.26	9.86	10.39	11.93	8.23	8.77	9.37	9.89	11.44
	12H	8.77	9.28	9.91	10.40	11.97	8.27	8.78	9.41	9.90	11.47
4H	2H	6.44	7.05	7.57	8.16	9.70	6.09	6.70	7.22	7.81	9.35
	3H	8.30	8.80	9.43	9.94	11.49	7.89	8.40	9.03	9.54	11.09
	4H	9.01	9.47	10.15	10.60	12.17	8.59	9.05	9.73	10.18	11.75
	6H	9.52	9.91	10.66	11.06	12.63	9.09	9.49	10.24	10.64	12.20
	8H	9.66	10.04	10.81	11.18	12.76	9.23	9.61	10.38	10.75	12.33
	12H	9.73	10.07	10.89	11.22	12.81	9.29	9.63	10.45	10.78	12.37
8H	4H	9.19	9.56	10.34	10.70	12.29	8.82	9.19	9.97	10.33	11.91
	6H	9.82	10.13	10.99	11.31	12.89	9.44	9.75	10.61	10.93	12.51
	8H	10.04	10.31	11.21	11.47	13.07	9.66	9.92	10.83	11.09	12.68
	12H	10.17	10.40	11.34	11.56	13.19	9.77	10.00	10.94	11.16	12.79
12H	4H	9.17	9.51	10.33	10.66	12.25	8.81	9.14	9.97	10.30	11.88
	6H	9.85	10.12	11.02	11.28	12.88	9.48	9.75	10.66	10.91	12.51
	8H	10.09	10.32	11.26	11.48	13.11	9.71	9.95	10.89	11.11	12.74