

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: P905102

Luminaire Tested: DFN2DIP-4P4F0-070D040US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905102
REPORT IS A COMBINATION OF REPORTS P899099 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D040US835-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

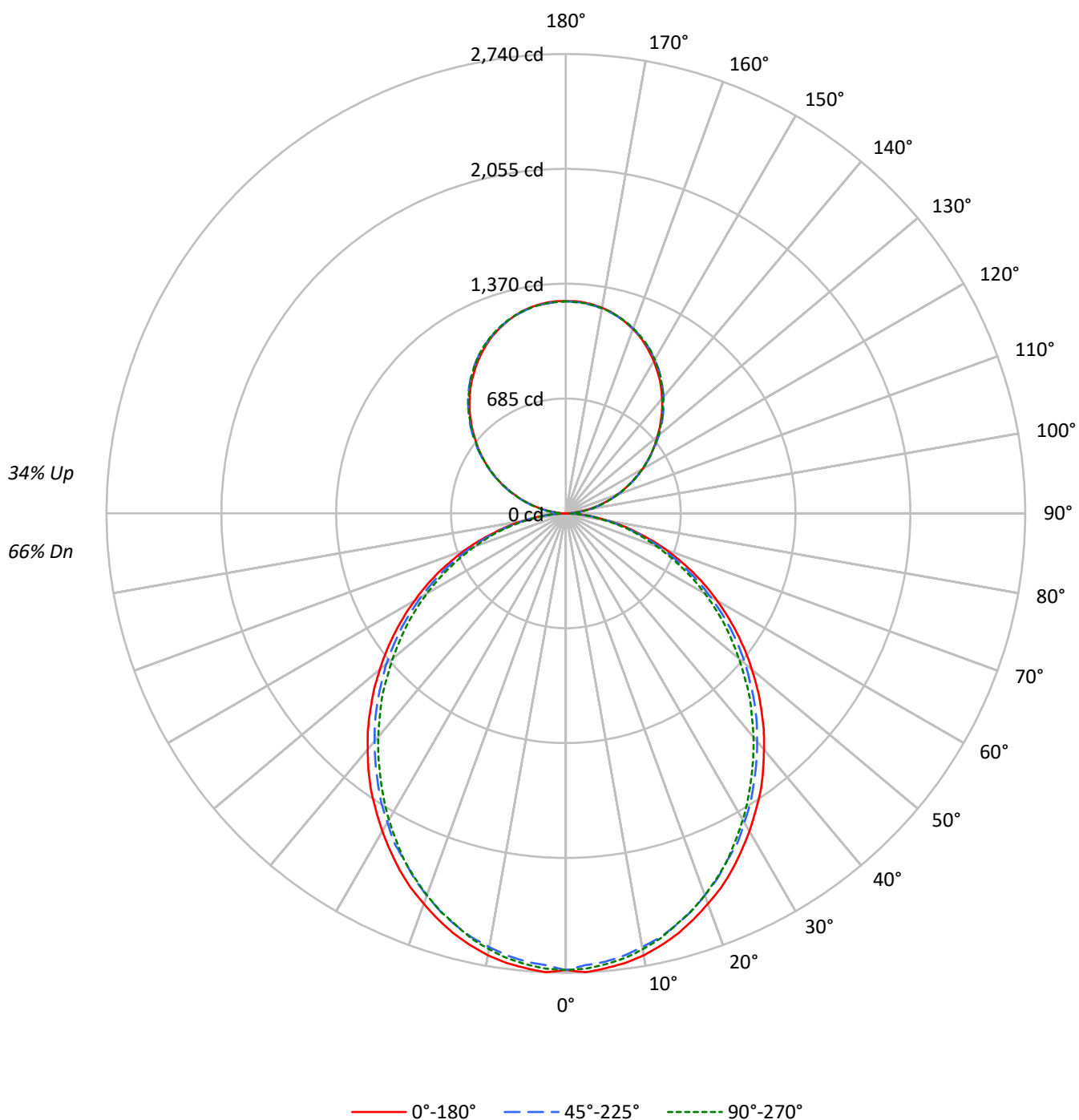
Lumens per Lamp: N/A
Luminaire Lumens: 10470.0 lumens
Efficiency: N/A
Efficacy: 99.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 105.1
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

TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFLL

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	104	104	104	104	92	92	92	81	81	81	71	71	71
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51
3	84	75	67	61	79	70	64	58	63	57	53	56	51	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	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	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°	1767	1767	1767
5°	1770	1743	1755
10°	1756	1720	1732
15°	1730	1692	1695
20°	1695	1653	1658
25°	1661	1607	1615
30°	1617	1564	1559
35°	1576	1513	1501
40°	1526	1461	1445
45°	1475	1410	1388
50°	1420	1355	1323
55°	1362	1293	1262
60°	1297	1218	1193
65°	1226	1141	1111
70°	1136	1047	1024
75°	1010	935	944
80°	859	793	790
85°	624	545	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1475 cd/sqm

TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	2.4
10°-20°	721.3	6.9
20°-30°	1060.0	10.1
30°-40°	1231.1	11.8
40°-50°	1229.6	11.7
50°-60°	1072.2	10.2
60°-70°	792.6	7.6
70°-80°	448.4	4.3
80°-90°	122.0	1.2
90°-100°	78.3	0.7
100°-110°	248.7	2.4
110°-120°	425.6	4.1
120°-130°	559.8	5.3
130°-140°	628.3	6.0
140°-150°	616.2	5.9
150°-160°	516.9	4.9
160°-170°	342.8	3.3
170°-180°	119.8	1.1
0°-30°	2037.7	19.5
0°-40°	3268.8	31.2
0°-60°	5570.6	53.2
0°-90°	6933.6	66.2
90°-120°	752.7	7.2
90°-150°	2556.9	24.4
90°-180°	3536.0	33.8
0°-180°	10470.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	1	14	37	35	36	10
95°	56	66	68	68	66	62
105°	230	233	235	237	237	242
115°	427	433	431	430	427	422
125°	621	631	628	624	623	555
135°	804	815	818	816	814	621
145°	976	983	989	990	986	610
155°	1116	1119	1122	1127	1124	513
165°	1214	1212	1212	1220	1215	342
175°	1263	1260	1257	1265	1259	120
180°	1265	1265	1265	1265	1265	

TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	1.1	13.7	37.4	35.1	36.2
92.5°	23.6	32.0	33.2	34.3	34.3
95°	55.7	66.4	68.3	68.3	66.4
97.5°	92.7	102.6	106.8	106.8	106.8
100°	135.4	144.2	147.2	147.2	146.1
102.5°	180.4	186.9	191.1	192.2	191.1
105°	229.6	232.6	234.9	236.8	236.8
107.5°	278.4	283.0	283.0	283.7	278.4
110°	325.7	331.8	331.8	331.8	328.8



TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	376.8	383.3	382.1	379.1	376.8
115°	427.1	433.3	431.3	430.2	427.1
117.5°	477.1	485.5	480.2	477.1	474.1
120°	527.5	535.8	527.5	527.5	524.0
122.5°	573.2	583.9	578.6	575.5	573.2
125°	621.3	630.8	627.8	624.3	623.2
127.5°	668.2	680.0	675.8	671.2	668.2
130°	712.0	725.8	723.9	721.6	717.4
132.5°	761.2	771.9	772.7	767.3	764.3
135°	803.6	815.4	817.7	816.5	813.5
137.5°	850.9	860.4	862.3	861.5	857.0
140°	892.4	902.0	907.3	907.3	903.1
142.5°	935.2	944.7	947.7	948.9	944.7
145°	975.6	983.2	989.3	990.5	986.3
147.5°	1011.8	1021.3	1025.9	1027.8	1023.6
150°	1049.2	1055.7	1059.9	1063.3	1059.9
152.5°	1082.4	1088.8	1094.2	1098.4	1094.2
155°	1115.5	1118.6	1122.0	1127.4	1123.9
157.5°	1144.2	1146.4	1148.3	1156.0	1150.6
160°	1169.7	1172.0	1173.1	1179.6	1175.0
162.5°	1193.3	1193.3	1194.5	1201.7	1196.4
165°	1213.6	1212.4	1212.4	1220.0	1214.7
167.5°	1231.9	1228.4	1228.4	1236.1	1230.7
170°	1245.6	1242.5	1241.4	1249.0	1242.5
172.5°	1255.1	1252.1	1250.9	1258.6	1252.1
175°	1262.8	1259.7	1257.4	1265.0	1258.6
177.5°	1267.0	1263.9	1261.6	1268.1	1261.6
180°	1265.0	1265.0	1265.0	1265.0	1265.0

TEST NUMBER: P905102

CATALOG NUMBER: DFN2DIP-4P4F0-070D040US835-FLLFLL

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	10.64	11.67	11.45	12.50	13.52	10.20	11.23	11.00	12.06	13.07
	3H	12.32	13.25	13.14	14.08	15.13	11.83	12.76	12.65	13.59	14.64
	4H	12.92	13.79	13.76	14.64	15.70	12.43	13.30	13.26	14.14	15.20
	6H	13.33	14.14	14.18	14.99	16.06	12.83	13.64	13.68	14.49	15.56
	8H	13.45	14.21	14.30	15.08	16.16	12.94	13.71	13.80	14.58	15.65
	12H	13.50	14.23	14.36	15.10	16.20	12.99	13.72	13.85	14.59	15.69
4H	2H	11.13	12.00	11.96	12.84	13.90	10.77	11.64	11.61	12.49	13.55
	3H	13.01	13.74	13.86	14.62	15.69	12.61	13.33	13.46	14.21	15.29
	4H	13.74	14.40	14.60	15.28	16.38	13.32	13.98	14.18	14.85	15.95
	6H	14.27	14.84	15.15	15.74	16.85	13.84	14.41	14.72	15.31	16.41
	8H	14.43	14.96	15.31	15.86	16.97	13.99	14.53	14.87	15.42	16.54
	12H	14.51	14.99	15.41	15.91	17.03	14.06	14.54	14.96	15.46	16.58
8H	4H	13.95	14.49	14.83	15.38	16.50	13.57	14.11	14.46	15.00	16.12
	6H	14.60	15.04	15.50	15.97	17.09	14.21	14.66	15.12	15.59	16.71
	8H	14.82	15.22	15.74	16.14	17.28	14.43	14.82	15.35	15.75	16.88
	12H	14.96	15.31	15.89	16.23	17.42	14.55	14.90	15.48	15.82	17.01
12H	4H	13.94	14.43	14.85	15.34	16.46	13.58	14.06	14.48	14.97	16.10
	6H	14.63	15.02	15.55	15.95	17.08	14.26	14.65	15.17	15.58	16.71
	8H	14.88	15.23	15.80	16.15	17.33	14.50	14.85	15.42	15.77	16.95