

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: P905104

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

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905104
REPORT IS A COMBINATION OF REPORTS P899100 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D040US835-RLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

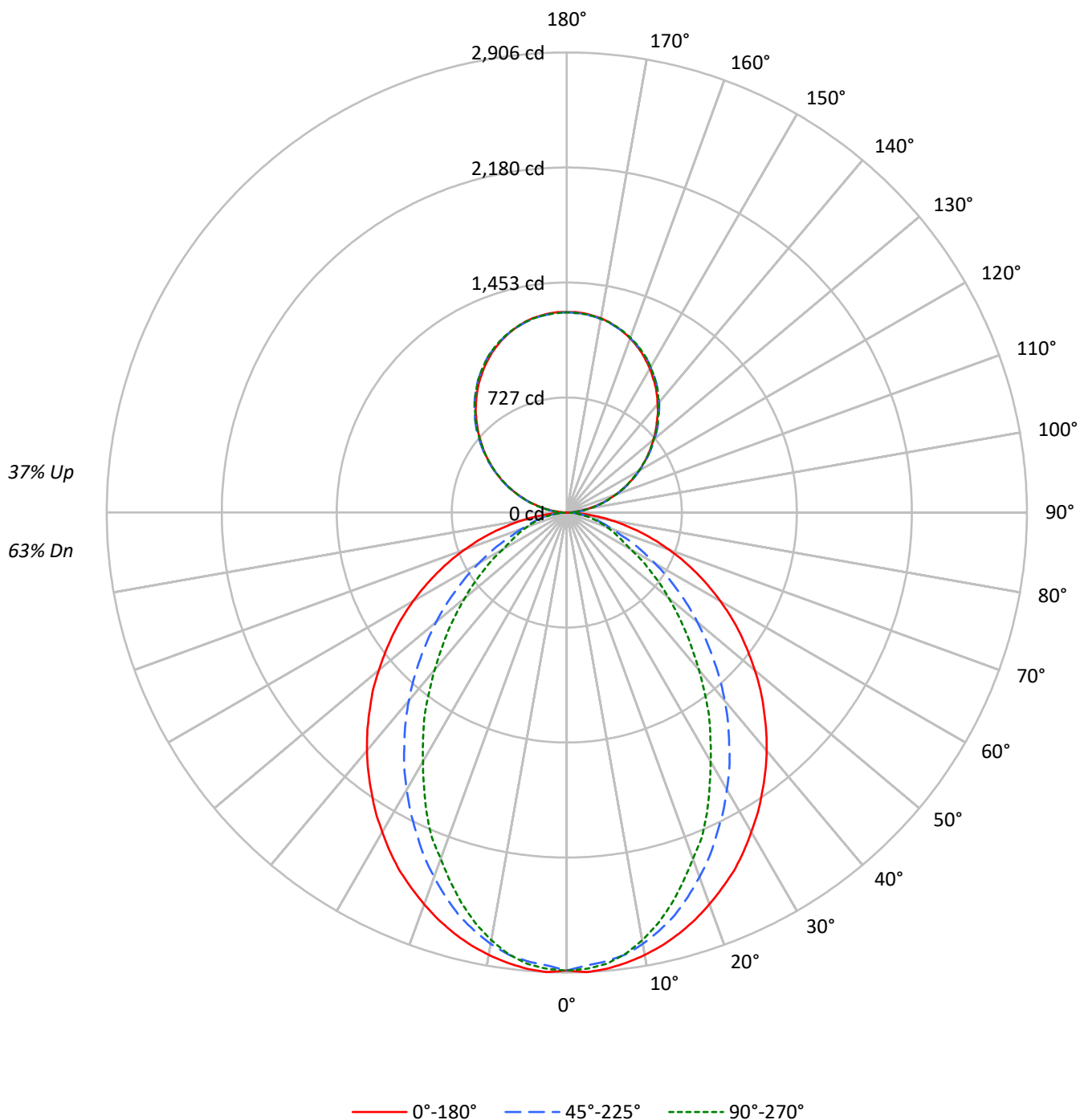
Lumens per Lamp: N/A
Luminaire Lumens: 9490.0 lumens
Efficiency: N/A
Efficacy: 90.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

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

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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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	70	68	67	61	60	58
2	93	85	80	75	87	80	75	71	71	67	64	62	59	57	54	52	50
3	85	76	69	63	79	71	65	60	63	58	54	56	52	49	49	46	43
4	78	67	60	54	73	64	57	51	57	51	47	50	46	42	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	45	41	37	40	36	33
6	67	55	47	41	62	52	44	39	46	40	36	41	36	33	36	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	29	33	30	27
8	57	45	38	32	54	43	36	31	39	33	29	35	30	26	31	27	24
9	54	42	34	29	50	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	36	30	25	33	27	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1877	1877	1877
5°	1880	1848	1860
10°	1862	1812	1800
15°	1836	1753	1707
20°	1802	1671	1593
25°	1768	1579	1482
30°	1721	1484	1342
35°	1676	1383	1219
40°	1629	1278	1078
45°	1576	1161	949
50°	1520	1043	824
55°	1462	917	704
60°	1395	785	580
65°	1317	651	523
70°	1224	526	474
75°	1106	465	433
80°	936	392	378
85°	654	265	289

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1576 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	2.9
10°-20°	744.3	7.8
20°-30°	1045.0	11.0
30°-40°	1139.2	12.0
40°-50°	1047.0	11.0
50°-60°	822.3	8.7
60°-70°	535.2	5.6
70°-80°	275.5	2.9
80°-90°	73.9	0.8
90°-100°	78.3	0.8
100°-110°	248.7	2.6
110°-120°	425.6	4.5
120°-130°	559.8	5.9
130°-140°	628.3	6.6
140°-150°	616.2	6.5
150°-160°	516.9	5.4
160°-170°	342.8	3.6
170°-180°	119.8	1.3
0°-30°	2060.5	21.7
0°-40°	3199.7	33.7
0°-60°	5068.9	53.4
0°-90°	5953.6	62.7
90°-120°	752.7	7.9
90°-150°	2556.9	26.9
90°-180°	3536.0	37.3
0°-180°	9490.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2893	2893	2893	2893	2893	
5°	2893	2880	2846	2870	2862	274
15°	2752	2723	2634	2584	2558	775
25°	2498	2414	2241	2134	2094	1149
35°	2152	2019	1788	1623	1566	1347
45°	1760	1584	1309	1123	1060	1359
55°	1338	1134	851	694	644	1195
65°	903	691	456	367	359	896
75°	482	298	209	191	189	509
85°	112	58	50	50	50	129
90°	1	14	37	35	36	9
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	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2893.1	2893.1	2893.1	2893.1	2893.1
2.5°	2906.1	2893.1	2864.2	2890.6	2885.3
5°	2893.1	2880.0	2845.9	2869.5	2861.7
7.5°	2869.5	2853.9	2817.3	2827.5	2814.5
10°	2838.1	2819.8	2767.5	2759.5	2743.9
12.5°	2798.9	2775.3	2704.5	2688.9	2660.0
15°	2751.7	2722.8	2633.9	2584.2	2558.1
17.5°	2696.7	2654.8	2544.8	2487.2	2445.3
20°	2633.9	2581.4	2450.6	2385.3	2327.5
22.5°	2565.9	2505.6	2353.6	2264.7	2225.6
25°	2497.8	2413.9	2241.1	2133.9	2094.5
27.5°	2416.7	2327.5	2136.4	2013.4	1953.1
30°	2330.3	2230.6	2021.1	1887.8	1817.0
32.5°	2246.4	2125.9	1911.4	1754.2	1688.6
35°	2152.2	2018.6	1788.4	1623.4	1565.6
37.5°	2060.6	1916.4	1673.1	1492.2	1427.0
40°	1963.6	1806.7	1552.5	1366.7	1298.6
42.5°	1864.2	1696.7	1432.2	1238.3	1173.1
45°	1759.5	1583.9	1309.2	1123.1	1060.3
47.5°	1660.0	1474.2	1191.4	1005.3	947.8
50°	1550.0	1364.2	1076.1	895.3	840.6
52.5°	1442.5	1246.1	966.1	793.3	743.6
55°	1337.8	1133.6	850.8	693.9	644.2
57.5°	1230.6	1021.1	748.9	602.2	560.3
60°	1120.6	911.1	641.4	508.1	466.1
62.5°	1013.3	803.9	549.7	424.2	403.3
65°	903.3	691.1	455.6	366.7	358.6
67.5°	798.6	586.4	366.7	321.9	314.2
70°	688.6	484.4	303.6	277.5	266.9
72.5°	583.9	390.0	253.9	233.1	227.8
75°	481.7	298.3	209.4	191.1	188.6
77.5°	379.7	211.9	165.0	154.4	149.2
80°	285.3	151.9	125.6	115.3	115.3
82.5°	198.9	102.2	86.4	81.1	81.1
85°	112.5	57.5	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
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

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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

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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	10.47	11.41	11.31	12.28	13.35	6.43	7.37	7.27	8.24	9.32
	3H	12.16	13.00	13.02	13.88	14.98	7.62	8.47	8.48	9.34	10.45
	4H	12.78	13.57	13.65	14.45	15.57	8.08	8.88	8.96	9.76	10.88
	6H	13.21	13.94	14.09	14.83	15.96	8.41	9.15	9.30	10.03	11.16
	8H	13.34	14.04	14.24	14.94	16.07	8.50	9.20	9.40	10.11	11.24
	12H	13.41	14.07	14.31	14.97	16.13	8.55	9.22	9.45	10.12	11.27
4H	2H	10.50	11.30	11.38	12.18	13.29	7.04	7.84	7.92	8.72	9.83
	3H	12.34	13.01	13.24	13.92	15.05	8.40	9.06	9.29	9.98	11.11
	4H	13.04	13.65	13.95	14.56	15.72	8.96	9.56	9.86	10.47	11.63
	6H	13.57	14.09	14.49	15.02	16.18	9.38	9.90	10.30	10.83	12.00
	8H	13.75	14.24	14.67	15.16	16.34	9.52	10.00	10.44	10.93	12.10
	12H	13.86	14.29	14.79	15.24	16.42	9.59	10.02	10.53	10.97	12.15
8H	4H	13.02	13.51	13.94	14.43	15.61	9.25	9.73	10.17	10.66	11.83
	6H	13.60	14.00	14.54	14.97	16.14	9.77	10.17	10.72	11.14	12.31
	8H	13.82	14.17	14.77	15.13	16.32	9.97	10.32	10.92	11.28	12.47
	12H	13.97	14.28	14.92	15.23	16.47	10.09	10.40	11.05	11.36	12.60
12H	4H	12.98	13.42	13.92	14.36	15.54	9.26	9.70	10.20	10.64	11.82
	6H	13.57	13.93	14.53	14.89	16.08	9.82	10.18	10.78	11.14	12.33
	8H	13.80	14.12	14.76	15.07	16.31	10.04	10.35	11.00	11.31	12.55