

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: P907855

Luminaire Tested: DFN2DIP-4P4F0-080D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907855
REPORT IS A COMBINATION OF REPORTS P900621 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D040US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

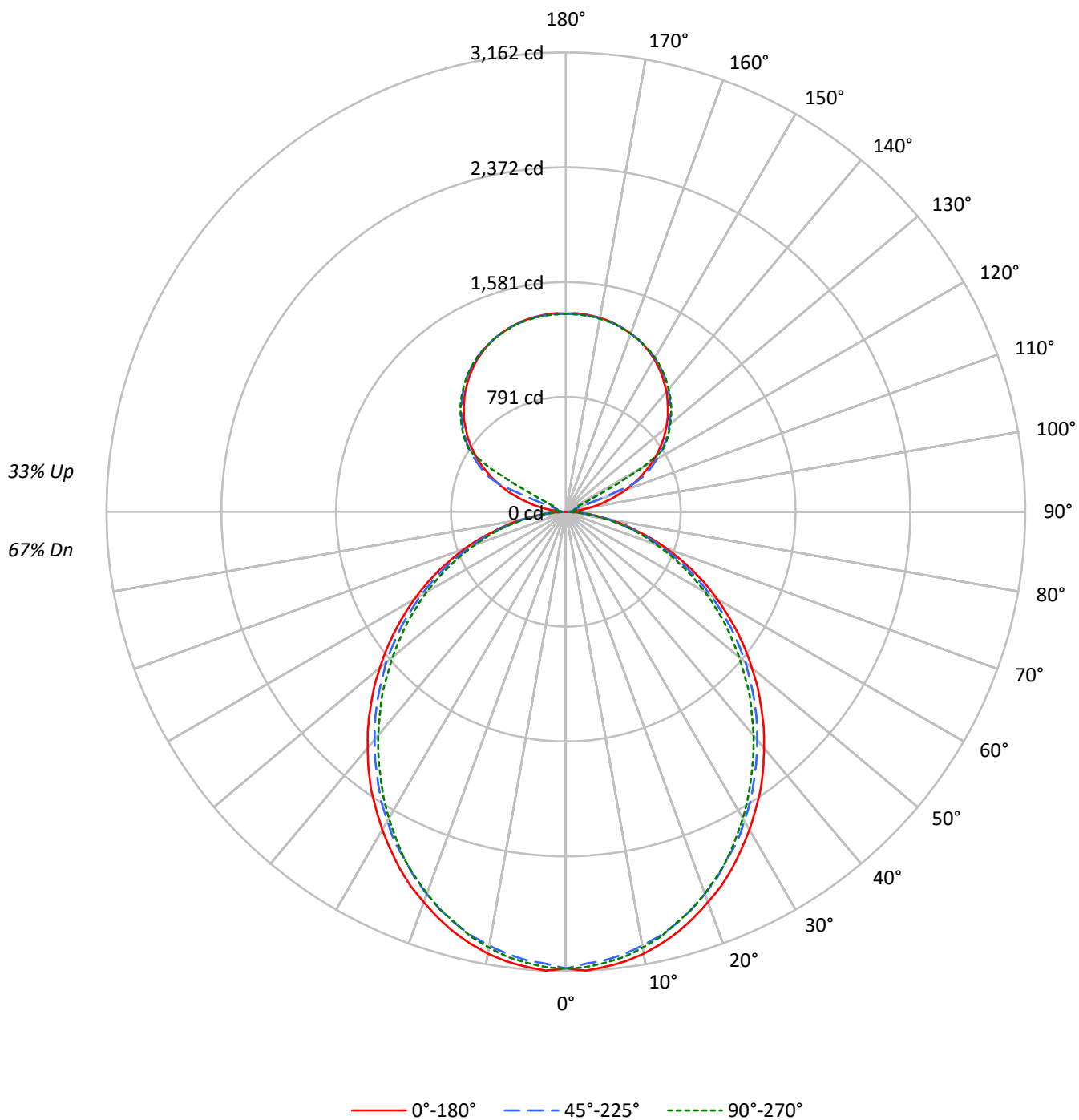
Lumens per Lamp: N/A
Luminaire Lumens: 11997.2 lumens
Efficiency: N/A
Efficacy: 102.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 116.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P907855

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P907855

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US840-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	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°	2039	2039	2039
5°	2043	2012	2025
10°	2026	1985	1999
15°	1997	1953	1956
20°	1957	1908	1913
25°	1917	1855	1863
30°	1867	1805	1800
35°	1819	1746	1732
40°	1761	1686	1668
45°	1703	1627	1603
50°	1639	1564	1526
55°	1572	1492	1457
60°	1497	1406	1377
65°	1415	1317	1283
70°	1311	1209	1182
75°	1166	1080	1090
80°	992	915	912
85°	720	629	615

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1703 cd/sqm

TEST NUMBER: P907855

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	2.5
10°-20°	832.5	6.9
20°-30°	1223.4	10.2
30°-40°	1420.9	11.8
40°-50°	1419.1	11.8
50°-60°	1237.5	10.3
60°-70°	914.7	7.6
70°-80°	517.6	4.3
80°-90°	139.0	1.2
90°-100°	44.9	0.4
100°-110°	167.6	1.4
110°-120°	444.4	3.7
120°-130°	737.1	6.1
130°-140°	783.0	6.5
140°-150°	727.7	6.1
150°-160°	585.1	4.9
160°-170°	377.0	3.1
170°-180°	129.8	1.1
0°-30°	2351.8	19.6
0°-40°	3772.7	31.4
0°-60°	6429.3	53.6
0°-90°	8000.6	66.7
90°-120°	656.9	5.5
90°-150°	2904.8	24.2
90°-180°	3997.0	33.3
0°-180°	11997.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3144	3132	3098	3122	3117	298
15°	2992	2975	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2337	2306	2258	2240	2225	1459
45°	1902	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1287
65°	970	952	922	895	880	959
75°	508	502	487	469	475	542
85°	124	121	118	109	106	138
90°	1	12	20	25	27	11
95°	64	32	38	43	42	76
105°	300	330	60	71	75	320
115°	567	584	609	152	81	558
125°	802	815	834	840	843	715
135°	992	1008	1017	1027	1025	767
145°	1151	1150	1167	1174	1169	720
155°	1268	1259	1271	1276	1269	584
165°	1336	1330	1333	1340	1333	377
175°	1366	1359	1361	1368	1358	130
180°	1363	1363	1363	1363	1363	

TEST NUMBER: P907855

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.5	3143.5	3143.5	3143.5	3143.5
2.5°	3161.8	3146.7	3113.4	3143.5	3137.8
5°	3143.5	3131.7	3098.4	3122.4	3116.6
7.5°	3122.4	3104.4	3071.1	3095.4	3089.4
10°	3089.4	3068.2	3031.9	3056.0	3047.1
12.5°	3043.8	3025.9	2989.6	3004.7	2998.6
15°	2992.5	2974.6	2935.1	2947.3	2932.2
17.5°	2929.0	2911.0	2871.6	2886.7	2871.6
20°	2859.4	2841.5	2799.1	2808.1	2796.2
22.5°	2790.2	2762.9	2723.4	2723.4	2717.3
25°	2708.4	2684.3	2633.0	2638.8	2633.0
27.5°	2617.6	2596.5	2557.3	2548.3	2533.2
30°	2527.2	2502.7	2457.6	2448.6	2436.4
32.5°	2430.3	2412.4	2363.9	2345.6	2333.5
35°	2336.6	2306.5	2258.1	2239.8	2224.7
37.5°	2230.8	2203.5	2155.2	2133.9	2118.9
40°	2122.1	2097.7	2049.3	2022.4	2010.1
42.5°	2016.3	1991.9	1943.8	1913.3	1895.4
45°	1901.5	1880.3	1834.7	1801.7	1789.6
47.5°	1789.6	1768.4	1719.9	1686.6	1668.6
50°	1671.5	1656.5	1614.1	1571.8	1556.7
52.5°	1556.7	1535.5	1496.4	1463.1	1441.9
55°	1439.0	1420.7	1384.5	1348.3	1333.1
57.5°	1321.0	1306.0	1266.5	1230.2	1218.0
60°	1203.0	1191.1	1148.7	1115.4	1106.4
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.5	952.2	922.0	894.7	879.7
67.5°	849.5	834.1	807.2	786.1	773.9
70°	737.6	725.4	698.2	677.0	665.1
72.5°	622.8	610.7	595.5	574.4	565.4
75°	507.7	501.9	486.6	468.6	474.6
77.5°	405.1	392.8	386.8	377.8	368.8
80°	302.5	299.2	293.2	284.2	278.0
82.5°	205.6	205.6	202.7	190.5	190.5
85°	123.8	120.9	118.1	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	0.9	11.8	19.7	24.7	26.6
92.5°	24.7	20.7	23.6	25.7	26.6
95°	64.0	31.5	38.4	43.4	42.4
97.5°	115.4	34.5	50.3	53.3	54.2
100°	174.6	39.5	56.2	64.0	66.0
102.5°	239.6	237.8	58.2	69.0	72.0
105°	299.8	329.5	60.2	71.0	74.9
107.5°	369.9	394.6	62.2	73.0	77.0
110°	437.1	457.7	172.7	74.0	77.9

TEST NUMBER: P907855

CATALOG NUMBER: DFN2DIP-4P4F0-080D040US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	500.2	517.9	501.1	75.9	79.0
115°	567.1	583.9	608.6	151.9	81.0
117.5°	625.4	645.1	662.0	520.8	262.4
120°	690.5	705.3	723.1	735.0	601.8
122.5°	745.7	761.5	781.3	787.2	788.2
125°	801.9	814.9	833.5	840.5	843.4
127.5°	853.2	867.1	881.9	891.8	892.7
130°	901.6	917.5	928.2	939.1	938.2
132.5°	950.9	963.8	974.6	983.5	982.6
135°	992.4	1008.2	1017.0	1026.9	1025.0
137.5°	1035.7	1047.5	1057.5	1067.3	1064.4
140°	1078.1	1086.1	1096.9	1105.8	1100.9
142.5°	1113.8	1120.6	1133.5	1141.2	1136.4
145°	1151.2	1150.2	1166.9	1173.9	1168.9
147.5°	1183.7	1180.7	1197.5	1202.4	1198.6
150°	1215.3	1208.4	1224.3	1230.1	1225.2
152.5°	1241.9	1234.1	1248.8	1254.8	1247.9
155°	1267.6	1258.8	1270.6	1276.5	1268.6
157.5°	1288.3	1280.4	1289.4	1296.3	1288.3
160°	1306.1	1300.1	1306.1	1311.9	1305.0
162.5°	1321.8	1316.0	1320.9	1327.8	1318.9
165°	1335.6	1329.8	1332.7	1339.6	1332.7
167.5°	1346.6	1340.5	1343.6	1350.5	1341.6
170°	1355.4	1349.5	1351.4	1358.4	1349.5
172.5°	1361.3	1355.4	1357.5	1364.3	1355.4
175°	1366.1	1359.3	1361.3	1368.2	1358.4
177.5°	1368.2	1361.3	1362.3	1369.3	1360.4
180°	1363.3	1363.3	1363.3	1363.3	1363.3

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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	11.18	12.21	11.98	13.04	14.05	10.74	11.77	11.53	12.59	13.60
	3H	12.86	13.79	13.67	14.62	15.66	12.37	13.30	13.18	14.13	15.17
	4H	13.46	14.34	14.29	15.17	16.23	12.96	13.84	13.79	14.68	15.73
	6H	13.87	14.68	14.71	15.53	16.59	13.37	14.18	14.21	15.03	16.09
	8H	13.98	14.75	14.83	15.62	16.68	13.48	14.25	14.33	15.12	16.18
	12H	14.04	14.77	14.90	15.63	16.73	13.53	14.26	14.39	15.12	16.21
4H	2H	11.66	12.54	12.50	13.38	14.43	11.31	12.19	12.14	13.02	14.08
	3H	13.55	14.28	14.40	15.16	16.22	13.14	13.88	13.99	14.75	15.81
	4H	14.28	14.94	15.13	15.81	16.91	13.85	14.52	14.71	15.39	16.48
	6H	14.81	15.38	15.68	16.28	17.37	14.37	14.95	15.25	15.85	16.94
	8H	14.96	15.50	15.84	16.39	17.50	14.53	15.06	15.40	15.95	17.06
	12H	15.05	15.53	15.94	16.44	17.56	14.60	15.08	15.49	15.99	17.11
8H	4H	14.49	15.03	15.36	15.92	17.03	14.11	14.65	14.99	15.54	16.65
	6H	15.13	15.58	16.04	16.51	17.62	14.75	15.20	15.65	16.13	17.24
	8H	15.36	15.75	16.27	16.68	17.81	14.97	15.36	15.88	16.29	17.41
	12H	15.50	15.85	16.42	16.77	17.95	15.09	15.44	16.01	16.36	17.54
12H	4H	14.48	14.97	15.38	15.88	16.99	14.11	14.60	15.01	15.51	16.62
	6H	15.16	15.56	16.08	16.48	17.61	14.79	15.19	15.71	16.11	17.24
	8H	15.42	15.77	16.34	16.68	17.86	15.04	15.39	15.96	16.30	17.48