

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: P907807

Luminaire Tested: DFN2DIP-4P4F0-060D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907807
REPORT IS A COMBINATION OF REPORTS P900617 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D040US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

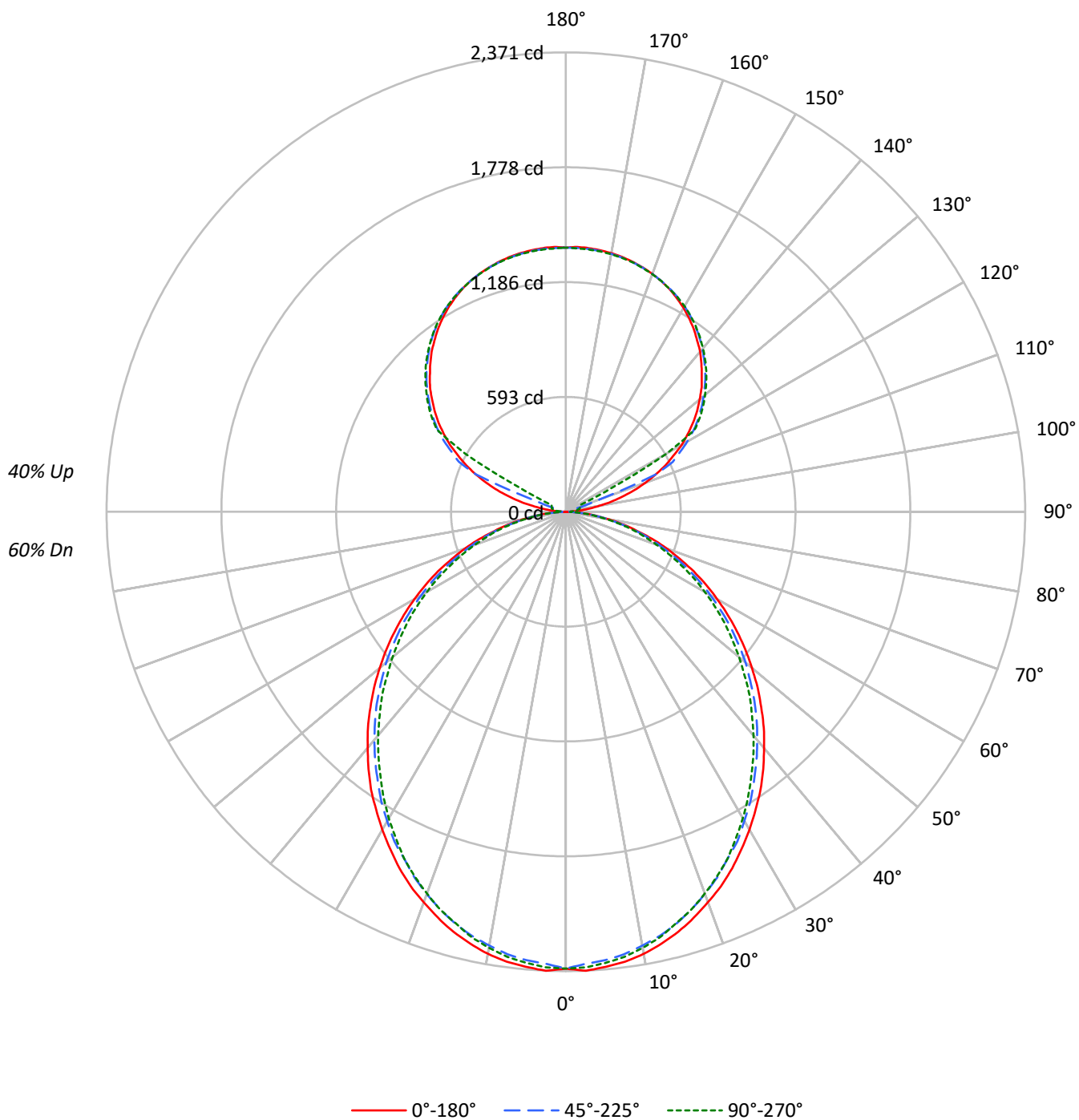
Lumens per Lamp: N/A
Luminaire Lumens: 9997.6 lumens
Efficiency: N/A
Efficacy: 108.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 92.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1529	1529	1529
5°	1532	1509	1519
10°	1520	1489	1499
15°	1497	1465	1467
20°	1467	1431	1435
25°	1437	1391	1398
30°	1400	1354	1350
35°	1364	1309	1299
40°	1321	1265	1251
45°	1277	1220	1202
50°	1229	1173	1145
55°	1179	1119	1093
60°	1123	1054	1033
65°	1061	988	962
70°	983	907	887
75°	874	810	817
80°	744	686	684
85°	539	472	462

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1277 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.2
10°-20°	624.4	6.2
20°-30°	917.5	9.2
30°-40°	1065.7	10.7
40°-50°	1064.4	10.6
50°-60°	928.1	9.3
60°-70°	686.1	6.9
70°-80°	388.2	3.9
80°-90°	104.8	1.0
90°-100°	44.9	0.4
100°-110°	167.6	1.7
110°-120°	444.4	4.4
120°-130°	737.1	7.4
130°-140°	783.0	7.8
140°-150°	727.7	7.3
150°-160°	585.1	5.9
160°-170°	377.0	3.8
170°-180°	129.8	1.3
0°-30°	1763.8	17.6
0°-40°	2829.5	28.3
0°-60°	4821.9	48.2
0°-90°	6001.0	60.0
90°-120°	656.9	6.6
90°-150°	2904.8	29.1
90°-180°	3997.0	40.0
0°-180°	9997.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1694	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1066	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	12	20	25	27	9
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.6	2357.6	2357.6	2357.6	2357.6
2.5°	2371.4	2360.1	2335.0	2357.6	2353.3
5°	2357.6	2348.7	2323.7	2341.8	2337.4
7.5°	2341.8	2328.3	2303.3	2321.6	2317.0
10°	2317.0	2301.2	2273.9	2292.0	2285.2
12.5°	2282.9	2269.4	2242.2	2253.5	2249.0
15°	2244.3	2230.9	2201.3	2210.5	2199.2
17.5°	2196.8	2183.3	2153.7	2164.9	2153.7
20°	2144.6	2131.1	2099.3	2106.1	2097.2
22.5°	2092.6	2072.1	2042.6	2042.6	2038.0
25°	2031.2	2013.3	1974.7	1979.0	1974.7
27.5°	1963.2	1947.3	1917.9	1911.3	1900.0
30°	1895.4	1877.0	1843.2	1836.4	1827.3
32.5°	1822.7	1809.3	1772.9	1759.2	1750.1
35°	1752.5	1729.9	1693.5	1679.8	1668.5
37.5°	1673.1	1652.6	1616.4	1600.4	1589.1
40°	1591.5	1573.3	1537.0	1516.8	1507.6
42.5°	1512.2	1493.9	1457.8	1435.0	1421.5
45°	1426.1	1410.2	1376.0	1351.3	1342.1
47.5°	1342.1	1326.3	1290.0	1265.0	1251.4
50°	1253.6	1242.3	1210.6	1178.8	1167.5
52.5°	1167.5	1151.7	1122.3	1097.3	1081.5
55°	1079.2	1065.5	1038.3	1011.2	999.9
57.5°	990.8	979.5	949.9	922.7	913.5
60°	902.2	893.3	861.6	836.6	829.8
62.5°	816.1	800.2	777.6	755.0	745.9
65°	727.8	714.2	691.6	671.1	659.7
67.5°	637.1	625.6	605.4	589.6	580.4
70°	553.2	544.1	523.6	507.8	498.9
72.5°	467.1	458.0	446.7	430.8	424.0
75°	380.7	376.5	364.9	351.4	356.0
77.5°	303.8	294.7	290.0	283.4	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
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

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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	9.64	10.60	10.51	11.49	12.61	9.20	10.16	10.07	11.05	12.17
	3H	11.32	12.18	12.20	13.08	14.22	10.83	11.69	11.71	12.59	13.73
	4H	11.91	12.73	12.81	13.63	14.79	11.42	12.23	12.31	13.14	14.29
	6H	12.32	13.07	13.23	13.98	15.15	11.82	12.57	12.73	13.48	14.65
	8H	12.43	13.15	13.35	14.07	15.24	11.93	12.65	12.84	13.57	14.74
	12H	12.49	13.17	13.41	14.09	15.28	11.98	12.66	12.90	13.58	14.77
4H	2H	10.12	10.93	11.02	11.84	12.99	9.76	10.58	10.66	11.48	12.64
	3H	12.00	12.68	12.91	13.61	14.78	11.59	12.27	12.50	13.21	14.38
	4H	12.72	13.34	13.64	14.27	15.47	12.30	12.92	13.22	13.85	15.04
	6H	13.25	13.78	14.18	14.74	15.93	12.82	13.35	13.75	14.30	15.50
	8H	13.40	13.90	14.34	14.85	16.06	12.97	13.47	13.90	14.41	15.62
	12H	13.48	13.93	14.44	14.90	16.12	13.03	13.49	13.99	14.45	15.67
8H	4H	12.93	13.43	13.86	14.38	15.59	12.55	13.05	13.49	14.00	15.21
	6H	13.57	13.98	14.53	14.97	16.18	13.19	13.60	14.15	14.59	15.80
	8H	13.79	14.16	14.77	15.14	16.37	13.40	13.77	14.38	14.75	15.98
	12H	13.93	14.26	14.91	15.23	16.51	13.52	13.85	14.50	14.82	16.09
12H	4H	12.92	13.37	13.88	14.33	15.55	12.55	13.00	13.51	13.97	15.18
	6H	13.60	13.97	14.57	14.95	16.17	13.23	13.60	14.20	14.57	15.80
	8H	13.85	14.17	14.83	15.15	16.42	13.47	13.79	14.45	14.77	16.04