

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: P907719

Luminaire Tested: DFN2DIP-4P3F0-060D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907719
REPORT IS A COMBINATION OF REPORTS P900577 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US840-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

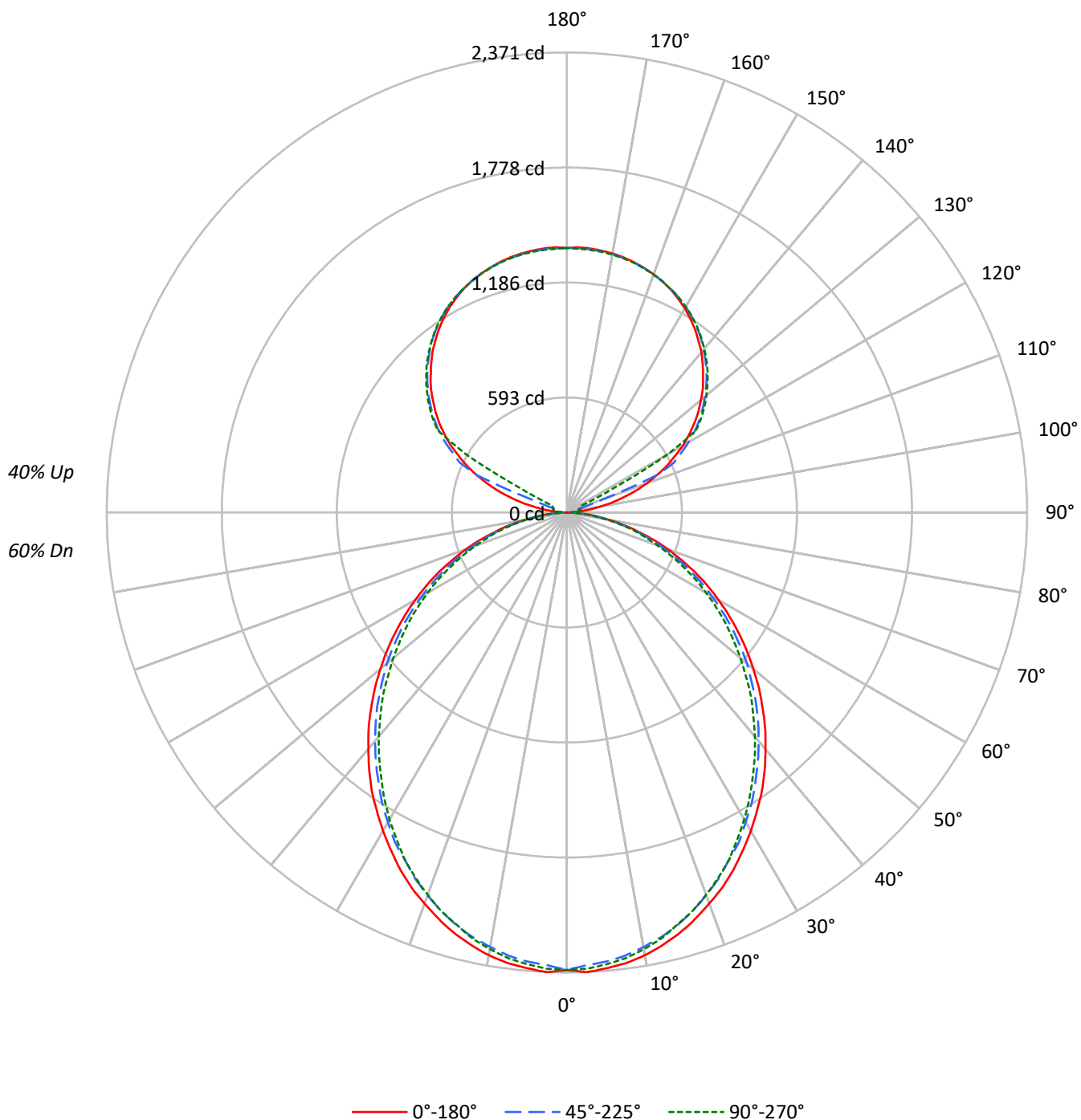
Lumens per Lamp: N/A
Luminaire Lumens: 9997.6 lumens
Efficiency: N/A
Efficacy: 108.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 91.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89		77	77	77		65
1	100	96	92	88	93	90	86	83	78	75	73		67	66	64		58
2	91	84	77	72	85	78	73	68	68	64	61		59	56	53		51
3	83	73	66	60	77	69	62	57	60	55	51		52	48	45		45
4	76	65	57	51	71	61	54	48	54	48	44		47	42	39		40
5	70	58	50	44	65	55	47	42	48	42	38		42	37	34		36
6	64	52	44	38	60	49	42	36	43	37	33		38	33	30		33
7	60	47	39	33	56	44	37	32	39	33	29		35	30	26		30
8	55	43	35	30	52	40	33	28	36	30	26		32	27	23		28
9	52	39	32	26	48	37	30	25	33	27	23		29	24	21		26
10	48	36	29	24	45	34	27	23	30	25	21		27	22	19		24

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2687	2687	2687
5°	2689	2648	2666
10°	2666	2610	2629
15°	2625	2565	2572
20°	2570	2504	2514
25°	2516	2431	2446
30°	2448	2363	2360
35°	2384	2282	2269
40°	2305	2201	2183
45°	2226	2120	2095
50°	2140	2035	1993
55°	2049	1936	1898
60°	1947	1819	1790
65°	1835	1697	1663
70°	1692	1549	1526
75°	1495	1371	1398
80°	1257	1144	1155
85°	884	758	757

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2226 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	11.55	12.51	12.42	13.40	14.52	11.10	12.06	11.97	12.95	14.07
	3H	13.21	14.07	14.09	14.97	16.12	12.72	13.58	13.60	14.48	15.63
	4H	13.80	14.62	14.70	15.52	16.67	13.31	14.12	14.20	15.02	16.18
	6H	14.20	14.95	15.11	15.86	17.03	13.70	14.45	14.61	15.36	16.53
	8H	14.31	15.02	15.22	15.95	17.12	13.81	14.52	14.72	15.45	16.62
	12H	14.36	15.04	15.28	15.96	17.16	13.85	14.53	14.77	15.45	16.65
4H	2H	12.02	12.83	12.92	13.74	14.89	11.66	12.48	12.56	13.38	14.54
	3H	13.89	14.57	14.80	15.50	16.67	13.48	14.16	14.39	15.09	16.27
	4H	14.60	15.22	15.52	16.15	17.35	14.18	14.80	15.10	15.73	16.92
	6H	15.12	15.65	16.05	16.61	17.81	14.69	15.22	15.62	16.18	17.37
	8H	15.27	15.77	16.21	16.72	17.93	14.83	15.33	15.77	16.28	17.49
	12H	15.34	15.80	16.30	16.76	17.98	14.90	15.35	15.85	16.31	17.53
8H	4H	14.80	15.30	15.74	16.25	17.46	14.43	14.93	15.36	15.87	17.08
	6H	15.43	15.85	16.40	16.84	18.05	15.05	15.46	16.01	16.45	17.66
	8H	15.65	16.02	16.62	17.00	18.22	15.26	15.62	16.23	16.60	17.83
	12H	15.78	16.11	16.76	17.08	18.35	15.37	15.70	16.35	16.67	17.94
12H	4H	14.79	15.24	15.75	16.21	17.43	14.42	14.87	15.38	15.84	17.06
	6H	15.46	15.83	16.43	16.81	18.03	15.09	15.46	16.06	16.43	17.66
	8H	15.70	16.03	16.68	17.00	18.27	15.32	15.65	16.30	16.62	17.89