

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: P907783

Luminaire Tested: DFN2DIP-4P4F0-050D040US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907783
REPORT IS A COMBINATION OF REPORTS P900615 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D040US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

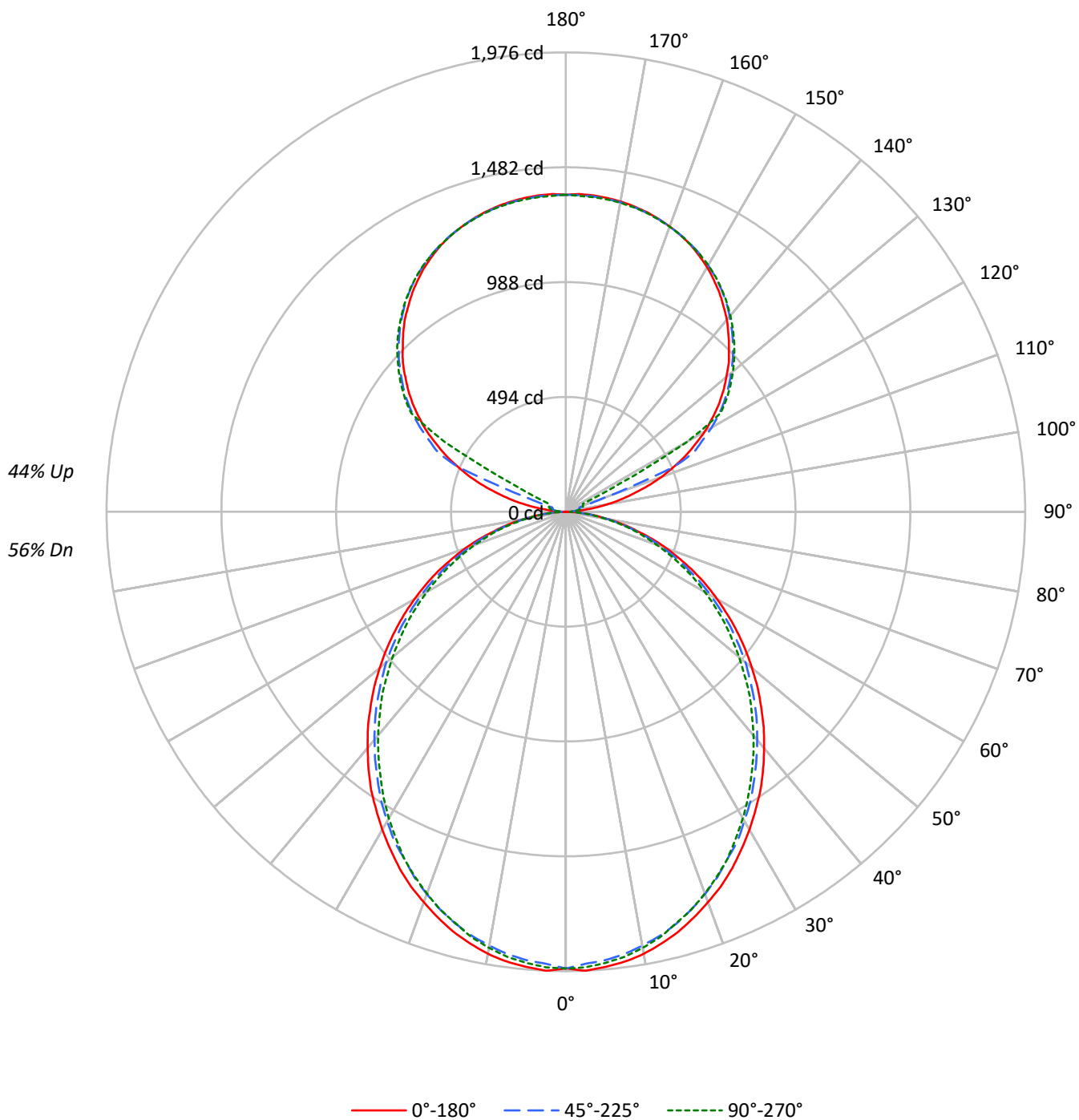
Lumens per Lamp: N/A
Luminaire Lumens: 8997.9 lumens
Efficiency: N/A
Efficacy: 111.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 80.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52
2	90	83	76	71	84	77	72	67	66	62	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	39	37
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1275	1275	1275
5°	1277	1257	1266
10°	1266	1241	1249
15°	1248	1221	1223
20°	1223	1193	1196
25°	1198	1159	1165
30°	1167	1128	1125
35°	1137	1091	1083
40°	1101	1054	1043
45°	1064	1017	1001
50°	1024	978	954
55°	983	932	910
60°	936	879	861
65°	884	823	802
70°	819	756	739
75°	729	675	681
80°	620	572	570
85°	450	393	384

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1064 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	2.1
10°-20°	520.3	5.8
20°-30°	764.6	8.5
30°-40°	888.1	9.9
40°-50°	887.0	9.9
50°-60°	773.4	8.6
60°-70°	571.7	6.4
70°-80°	323.5	3.6
80°-90°	87.8	1.0
90°-100°	44.9	0.5
100°-110°	167.6	1.9
110°-120°	444.4	4.9
120°-130°	737.1	8.2
130°-140°	783.0	8.7
140°-150°	727.7	8.1
150°-160°	585.1	6.5
160°-170°	377.0	4.2
170°-180°	129.8	1.4
0°-30°	1469.8	16.3
0°-40°	2357.9	26.2
0°-60°	4018.3	44.7
0°-90°	5001.2	55.6
90°-120°	656.9	7.3
90°-150°	2904.8	32.3
90°-180°	3997.0	44.4
0°-180°	8997.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	1	12	20	25	27	8
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°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
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	8.63	9.55	9.54	10.48	11.66	8.19	9.10	9.10	10.03	11.22
	3H	10.30	11.12	11.22	12.06	13.27	9.81	10.63	10.73	11.57	12.78
	4H	10.90	11.67	11.83	12.61	13.84	10.40	11.18	11.34	12.12	13.34
	6H	11.31	12.02	12.25	12.97	14.20	10.81	11.52	11.75	12.47	13.70
	8H	11.41	12.09	12.37	13.06	14.29	10.91	11.59	11.87	12.56	13.79
	12H	11.47	12.11	12.42	13.07	14.33	10.96	11.60	11.92	12.56	13.82
4H	2H	9.10	9.88	10.04	10.82	12.04	8.75	9.52	9.69	10.46	11.69
	3H	10.98	11.63	11.93	12.60	13.84	10.57	11.22	11.52	12.19	13.43
	4H	11.70	12.29	12.66	13.26	14.52	11.28	11.87	12.24	12.83	14.10
	6H	12.22	12.73	13.20	13.72	14.98	11.79	12.30	12.76	13.29	14.55
	8H	12.38	12.85	13.35	13.84	15.11	11.94	12.42	12.92	13.40	14.68
	12H	12.46	12.89	13.45	13.89	15.17	12.01	12.44	13.00	13.44	14.72
8H	4H	11.90	12.38	12.88	13.36	14.64	11.53	12.00	12.50	12.99	14.26
	6H	12.54	12.94	13.54	13.96	15.23	12.16	12.55	13.16	13.58	14.85
	8H	12.77	13.12	13.78	14.13	15.42	12.38	12.72	13.38	13.74	15.03
	12H	12.91	13.21	13.92	14.22	15.56	12.49	12.80	13.51	13.81	15.15
12H	4H	11.89	12.32	12.88	13.32	14.60	11.52	11.95	12.52	12.95	14.23
	6H	12.57	12.92	13.58	13.93	15.23	12.20	12.55	13.21	13.56	14.85
	8H	12.82	13.13	13.83	14.13	15.47	12.44	12.75	13.45	13.76	15.09