

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: P907790

Luminaire Tested: DFN2DIP-4P4F0-050D060US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907790
REPORT IS A COMBINATION OF REPORTS P899119 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D060US840-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

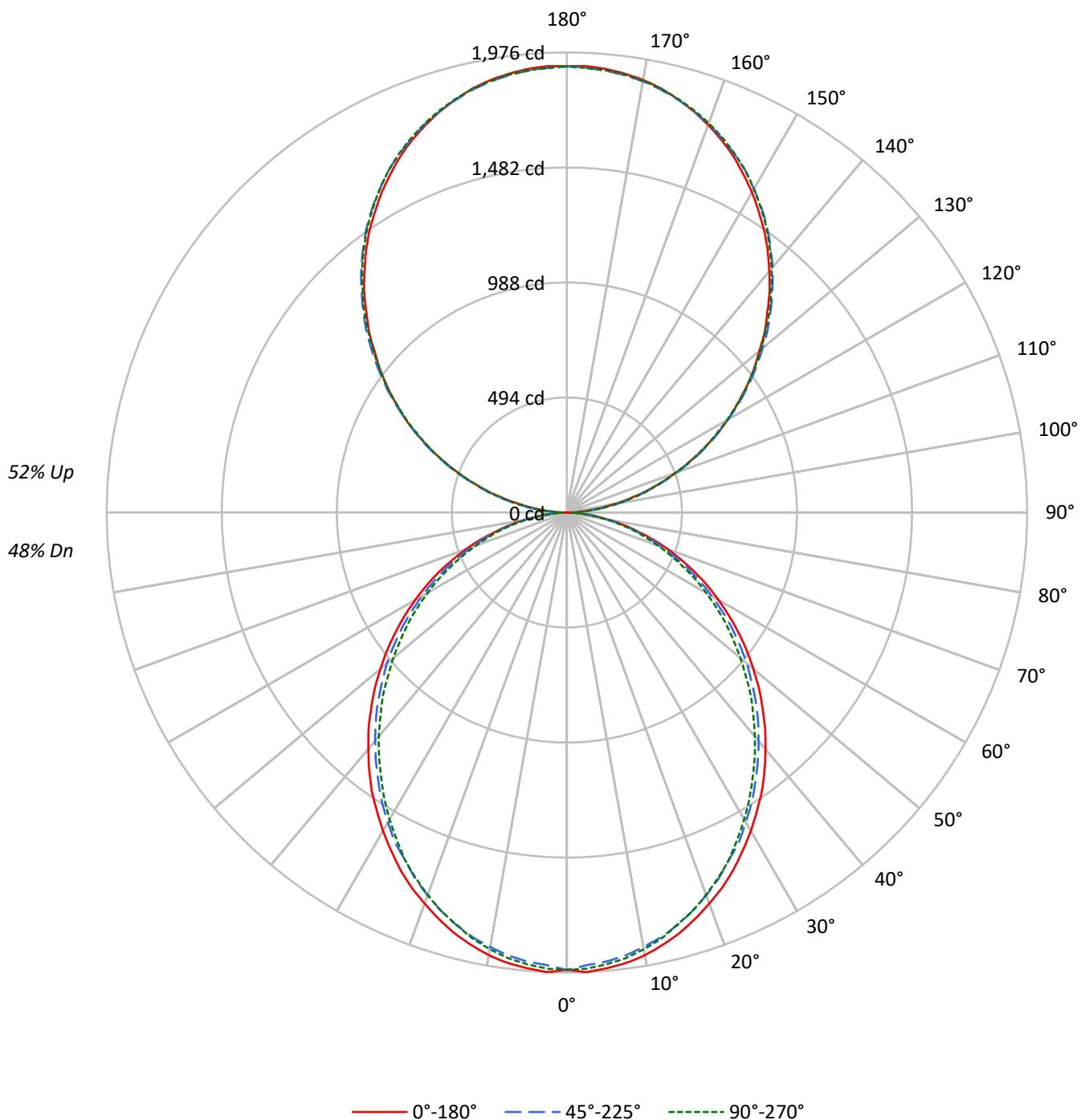
Lumens per Lamp: N/A
Luminaire Lumens: 10361.2 lumens
Efficiency: N/A
Efficacy: 103.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 100.4
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

TEST NUMBER: P907790

CATALOG NUMBER: DFN2DIP-4P4F0-050D060US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P907790

CATALOG NUMBER: DFN2DIP-4P4F0-050D060US840-FLLFLL

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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14

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: 90°

Vertical Angle: 90°

Luminance: 1448 cd/sqm

TEST NUMBER: P907790

CATALOG NUMBER: DFN2DIP-4P4F0-050D060US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.8
10°-20°	520.3	5.0
20°-30°	764.6	7.4
30°-40°	888.1	8.6
40°-50°	887.0	8.6
50°-60°	773.4	7.5
60°-70°	571.7	5.5
70°-80°	323.5	3.1
80°-90°	90.8	0.9
90°-100°	118.6	1.1
100°-110°	376.8	3.6
110°-120°	644.8	6.2
120°-130°	848.0	8.2
130°-140°	951.8	9.2
140°-150°	933.4	9.0
150°-160°	783.0	7.6
160°-170°	519.2	5.0
170°-180°	181.5	1.8
0°-30°	1469.8	14.2
0°-40°	2357.9	22.8
0°-60°	4018.3	38.8
0°-90°	5004.3	48.3
90°-120°	1140.1	11.0
90°-150°	3873.3	37.4
90°-180°	5357.0	51.7
0°-180°	10361.2	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°	2	21	57	53	55	10
95°	84	100	103	103	100	94
105°	348	352	356	359	359	367
115°	647	656	653	652	647	640
125°	941	956	951	946	944	841
135°	1217	1235	1239	1237	1232	941
145°	1478	1489	1499	1500	1494	923
155°	1690	1694	1700	1708	1702	778
165°	1838	1836	1836	1848	1840	519
175°	1913	1908	1905	1916	1906	182
180°	1916	1916	1916	1916	1916	

TEST NUMBER: P907790

CATALOG NUMBER: DFN2DIP-4P4F0-050D060US840-FLLFLL

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°	1.7	20.8	56.7	53.1	54.8
92.5°	35.9	48.6	50.3	52.0	52.0
95°	84.3	100.5	103.4	103.4	100.5
97.5°	140.4	155.4	161.8	161.8	161.8
100°	205.1	218.3	223.0	223.0	221.3
102.5°	273.3	283.1	289.4	291.1	289.4
105°	347.8	352.4	355.9	358.8	358.8
107.5°	421.7	428.7	428.7	429.8	421.7
110°	493.4	502.6	502.6	502.6	498.0

TEST NUMBER: P907790

CATALOG NUMBER: DFN2DIP-4P4F0-050D060US840-FLLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	570.8	580.6	578.9	574.2	570.8
115°	647.0	656.3	653.4	651.7	647.0
117.5°	722.8	735.5	727.3	722.8	718.1
120°	799.0	811.7	799.0	799.0	793.8
122.5°	868.3	884.4	876.4	871.8	868.3
125°	941.1	955.5	950.9	945.7	944.0
127.5°	1012.2	1030.1	1023.7	1016.8	1012.2
130°	1078.6	1099.4	1096.5	1093.1	1086.7
132.5°	1153.2	1169.3	1170.4	1162.4	1157.7
135°	1217.3	1235.2	1238.6	1236.9	1232.2
137.5°	1288.9	1303.3	1306.3	1305.0	1298.2
140°	1351.9	1366.3	1374.4	1374.4	1368.1
142.5°	1416.5	1431.0	1435.6	1437.3	1431.0
145°	1477.8	1489.3	1498.6	1500.4	1494.0
147.5°	1532.7	1547.1	1554.1	1556.9	1550.5
150°	1589.3	1599.1	1605.5	1610.6	1605.5
152.5°	1639.5	1649.4	1657.5	1663.9	1657.5
155°	1689.8	1694.5	1699.6	1707.8	1702.5
157.5°	1733.1	1736.7	1739.5	1751.1	1743.0
160°	1771.9	1775.3	1777.1	1786.9	1780.0
162.5°	1807.7	1807.7	1809.4	1820.4	1812.3
165°	1838.3	1836.5	1836.5	1848.2	1840.1
167.5°	1866.0	1860.9	1860.9	1872.4	1864.3
170°	1886.8	1882.2	1880.5	1892.0	1882.2
172.5°	1901.3	1896.6	1894.9	1906.4	1896.6
175°	1912.8	1908.2	1904.7	1916.3	1906.4
177.5°	1919.1	1914.6	1911.1	1920.9	1911.1
180°	1916.3	1916.3	1916.3	1916.3	1916.3

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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	7.97	8.82	8.94	9.80	11.10	7.53	8.37	8.50	9.36	10.66
	3H	9.64	10.40	10.62	11.39	12.71	9.15	9.91	10.13	10.90	12.22
	4H	10.23	10.95	11.22	11.95	13.27	9.73	10.45	10.73	11.45	12.78
	6H	10.63	11.29	11.64	12.30	13.63	10.13	10.79	11.14	11.80	13.13
	8H	10.74	11.37	11.75	12.39	13.72	10.24	10.87	11.25	11.89	13.22
	12H	10.79	11.39	11.81	12.40	13.76	10.28	10.88	11.30	11.89	13.25
4H	2H	8.43	9.15	9.43	10.15	11.47	8.08	8.80	9.08	9.79	11.12
	3H	10.30	10.90	11.31	11.93	13.27	9.90	10.50	10.91	11.52	12.86
	4H	11.02	11.57	12.04	12.59	13.95	10.60	11.15	11.62	12.17	13.53
	6H	11.54	12.01	12.57	13.06	14.42	11.11	11.58	12.14	12.62	13.98
	8H	11.69	12.14	12.72	13.17	14.54	11.26	11.70	12.29	12.73	14.11
	12H	11.77	12.17	12.82	13.22	14.60	11.32	11.72	12.37	12.77	14.15
8H	4H	11.22	11.66	12.25	12.70	14.07	10.84	11.28	11.87	12.32	13.69
	6H	11.86	12.22	12.91	13.30	14.67	11.47	11.84	12.53	12.91	14.29
	8H	12.08	12.40	13.14	13.46	14.85	11.69	12.01	12.75	13.07	14.46
	12H	12.21	12.50	13.28	13.55	14.99	11.80	12.09	12.87	13.14	14.58
12H	4H	11.20	11.60	12.25	12.65	14.03	10.84	11.23	11.88	12.29	13.66
	6H	11.89	12.21	12.95	13.27	14.66	11.51	11.84	12.58	12.90	14.29
	8H	12.13	12.41	13.20	13.47	14.90	11.75	12.03	12.82	13.09	14.52