

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: P916027

Luminaire Tested: DFN2DIP-4P4F0-070D070US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916027
REPORT IS A COMBINATION OF REPORTS P900655 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D070US930-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

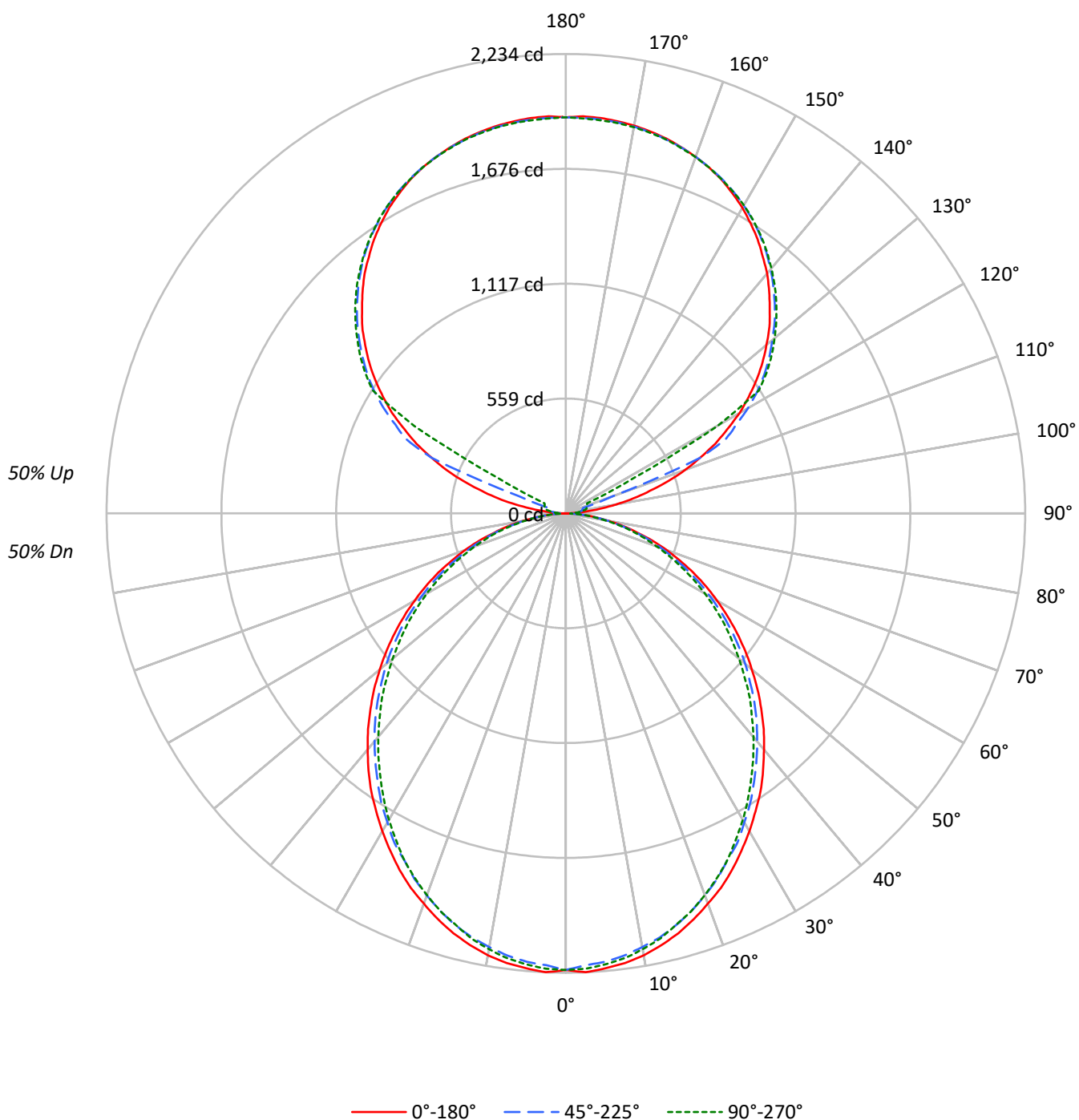
Lumens per Lamp: N/A
Luminaire Lumens: 11300.0 lumens
Efficiency: N/A
Efficacy: 83.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	50
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47	47	47	42
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40	40	40	35
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34	34	34	30
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29	29	29	26
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26	26	26	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23	23	23	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20	20	20	17
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18	18	18	16
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16	16	16	14
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	15	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1441	1441	1441
5°	1443	1421	1431
10°	1431	1402	1412
15°	1411	1380	1382
20°	1382	1348	1352
25°	1354	1310	1316
30°	1319	1275	1271
35°	1285	1233	1224
40°	1244	1191	1178
45°	1203	1149	1132
50°	1158	1105	1078
55°	1111	1054	1029
60°	1058	993	973
65°	1000	930	906
70°	926	854	835
75°	823	762	770
80°	700	646	644
85°	509	444	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1203 cd/sqm

TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	1.8
10°-20°	588.1	5.2
20°-30°	864.2	7.6
30°-40°	1003.7	8.9
40°-50°	1002.5	8.9
50°-60°	874.2	7.7
60°-70°	646.2	5.7
70°-80°	365.6	3.2
80°-90°	99.9	0.9
90°-100°	63.5	0.6
100°-110°	236.8	2.1
110°-120°	627.9	5.6
120°-130°	1041.5	9.2
130°-140°	1106.3	9.8
140°-150°	1028.1	9.1
150°-160°	826.6	7.3
160°-170°	532.6	4.7
170°-180°	183.3	1.6
0°-30°	1661.3	14.7
0°-40°	2665.1	23.6
0°-60°	4541.7	40.2
0°-90°	5653.4	50.0
90°-120°	928.2	8.2
90°-150°	4104.1	36.3
90°-180°	5647.0	50.0
0°-180°	11300.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	1	17	28	35	38	10
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1

TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

TEST NUMBER: P916027

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US930-FLONL

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	8.56	9.42	9.52	10.40	11.67	8.12	8.98	9.07	9.95	11.22
	3H	10.23	11.00	11.20	11.98	13.28	9.74	10.51	10.71	11.49	12.79
	4H	10.82	11.55	11.80	12.54	13.84	10.33	11.06	11.31	12.04	13.34
	6H	11.22	11.90	12.22	12.89	14.20	10.72	11.40	11.72	12.39	13.70
	8H	11.33	11.97	12.33	12.98	14.29	10.83	11.47	11.83	12.48	13.79
	12H	11.38	11.99	12.39	12.99	14.33	10.87	11.48	11.88	12.48	13.82
4H	2H	9.02	9.76	10.01	10.74	12.04	8.67	9.40	9.66	10.39	11.69
	3H	10.90	11.51	11.89	12.52	13.84	10.49	11.10	11.49	12.11	13.43
	4H	11.62	12.17	12.62	13.18	14.52	11.19	11.75	12.20	12.76	14.10
	6H	12.14	12.62	13.15	13.65	14.98	11.70	12.18	12.72	13.22	14.55
	8H	12.29	12.74	13.31	13.76	15.11	11.85	12.30	12.87	13.32	14.68
	12H	12.36	12.77	13.40	13.81	15.17	11.92	12.32	12.95	13.36	14.72
8H	4H	11.81	12.26	12.83	13.29	14.64	11.44	11.89	12.45	12.91	14.26
	6H	12.45	12.82	13.49	13.89	15.24	12.07	12.44	13.11	13.50	14.85
	8H	12.68	13.00	13.73	14.05	15.42	12.28	12.61	13.33	13.66	15.03
	12H	12.81	13.10	13.86	14.14	15.55	12.40	12.69	13.45	13.73	15.14
12H	4H	11.80	12.20	12.84	13.24	14.60	11.43	11.84	12.47	12.88	14.23
	6H	12.48	12.81	13.53	13.86	15.23	12.11	12.44	13.16	13.49	14.86
	8H	12.73	13.02	13.78	14.06	15.47	12.35	12.64	13.40	13.68	15.09