

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: P920994

Luminaire Tested: DFN2DIP-TR4F0-060D070US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920994
REPORT IS A COMBINATION OF REPORTS P900427 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D070US935-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

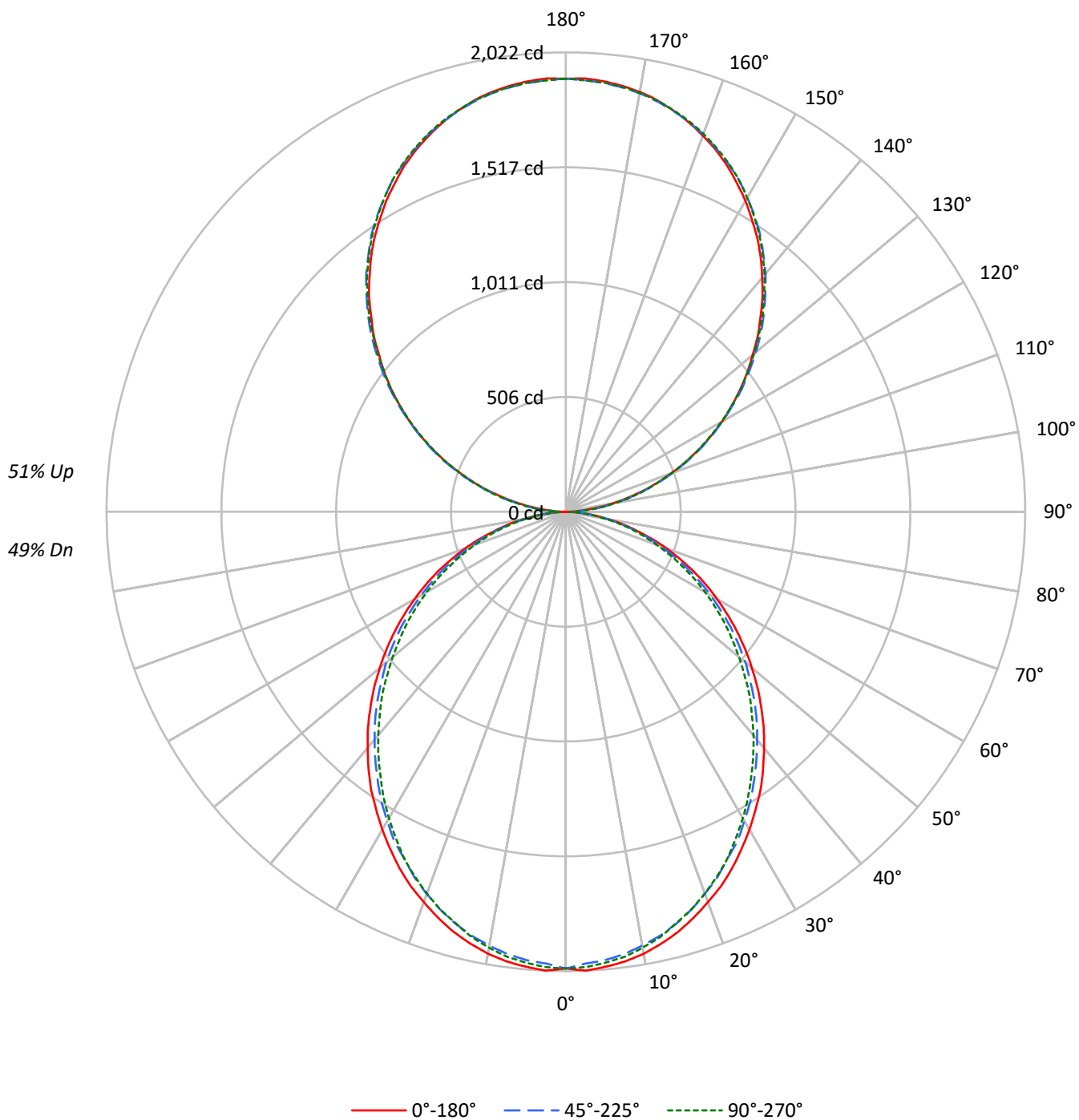
Lumens per Lamp: N/A
Luminaire Lumens: 10448.2 lumens
Efficiency: N/A
Efficacy: 99.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 105.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P920994

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US935-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P920994

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US935-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	83	83	83	68	68	68	55	55	55
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1597	1597	1597
5°	1599	1575	1585
10°	1587	1553	1564
15°	1563	1528	1530
20°	1532	1492	1496
25°	1500	1450	1456
30°	1461	1410	1405
35°	1424	1364	1352
40°	1378	1316	1301
45°	1332	1269	1249
50°	1282	1220	1189
55°	1230	1162	1134
60°	1171	1094	1070
65°	1106	1024	995
70°	1024	938	915
75°	910	835	840
80°	774	704	698
85°	559	477	463

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1486 cd/sqm

TEST NUMBER: P920994

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US935-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.8
10°-20°	532.3	5.1
20°-30°	782.3	7.5
30°-40°	908.6	8.7
40°-50°	907.5	8.7
50°-60°	791.3	7.6
60°-70°	584.9	5.6
70°-80°	330.9	3.2
80°-90°	92.8	0.9
90°-100°	117.9	1.1
100°-110°	374.8	3.6
110°-120°	641.3	6.1
120°-130°	843.5	8.1
130°-140°	946.7	9.1
140°-150°	928.4	8.9
150°-160°	778.8	7.5
160°-170°	516.5	4.9
170°-180°	180.5	1.7
0°-30°	1503.8	14.4
0°-40°	2412.4	23.1
0°-60°	4111.1	39.3
0°-90°	5119.7	49.0
90°-120°	1134.1	10.9
90°-150°	3852.7	36.9
90°-180°	5328.0	51.0
0°-180°	10448.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	2	21	56	53	55	10
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	

TEST NUMBER: P920994

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US935-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3

TEST NUMBER: P920994

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US935-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1

TEST NUMBER: P920994

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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	8.80	9.65	9.76	10.63	11.92	8.37	9.22	9.33	10.20	11.49
	3H	10.46	11.22	11.43	12.21	13.52	9.99	10.75	10.96	11.74	13.05
	4H	11.04	11.77	12.03	12.76	14.08	10.57	11.30	11.56	12.29	13.60
	6H	11.44	12.11	12.44	13.11	14.44	10.97	11.64	11.97	12.63	13.96
	8H	11.55	12.18	12.56	13.20	14.52	11.07	11.71	12.08	12.72	14.05
	12H	11.60	12.20	12.61	13.21	14.56	11.12	11.72	12.13	12.73	14.08
4H	2H	9.26	9.98	10.26	10.98	12.29	8.91	9.64	9.91	10.63	11.95
	3H	11.12	11.73	12.13	12.75	14.08	10.73	11.34	11.74	12.36	13.69
	4H	11.84	12.39	12.85	13.41	14.76	11.43	11.99	12.45	13.00	14.35
	6H	12.35	12.83	13.38	13.87	15.22	11.94	12.42	12.97	13.46	14.81
	8H	12.50	12.95	13.53	13.98	15.34	12.09	12.53	13.12	13.57	14.93
	12H	12.57	12.98	13.62	14.02	15.39	12.15	12.55	13.20	13.60	14.97
8H	4H	12.03	12.48	13.06	13.51	14.87	11.67	12.12	12.70	13.15	14.51
	6H	12.66	13.03	13.71	14.11	15.47	12.30	12.67	13.35	13.74	15.10
	8H	12.89	13.21	13.94	14.27	15.65	12.52	12.84	13.57	13.90	15.28
	12H	13.02	13.30	14.08	14.35	15.78	12.63	12.92	13.69	13.97	15.39
12H	4H	12.02	12.42	13.06	13.47	14.84	11.67	12.07	12.71	13.11	14.48
	6H	12.69	13.02	13.75	14.08	15.46	12.34	12.67	13.40	13.72	15.11
	8H	12.94	13.22	14.00	14.27	15.70	12.58	12.86	13.64	13.92	15.34