

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: P923738

Luminaire Tested: DFN2DIP-TR4F0-060D110US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923738
REPORT IS A COMBINATION OF REPORTS P900499 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D110US940-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

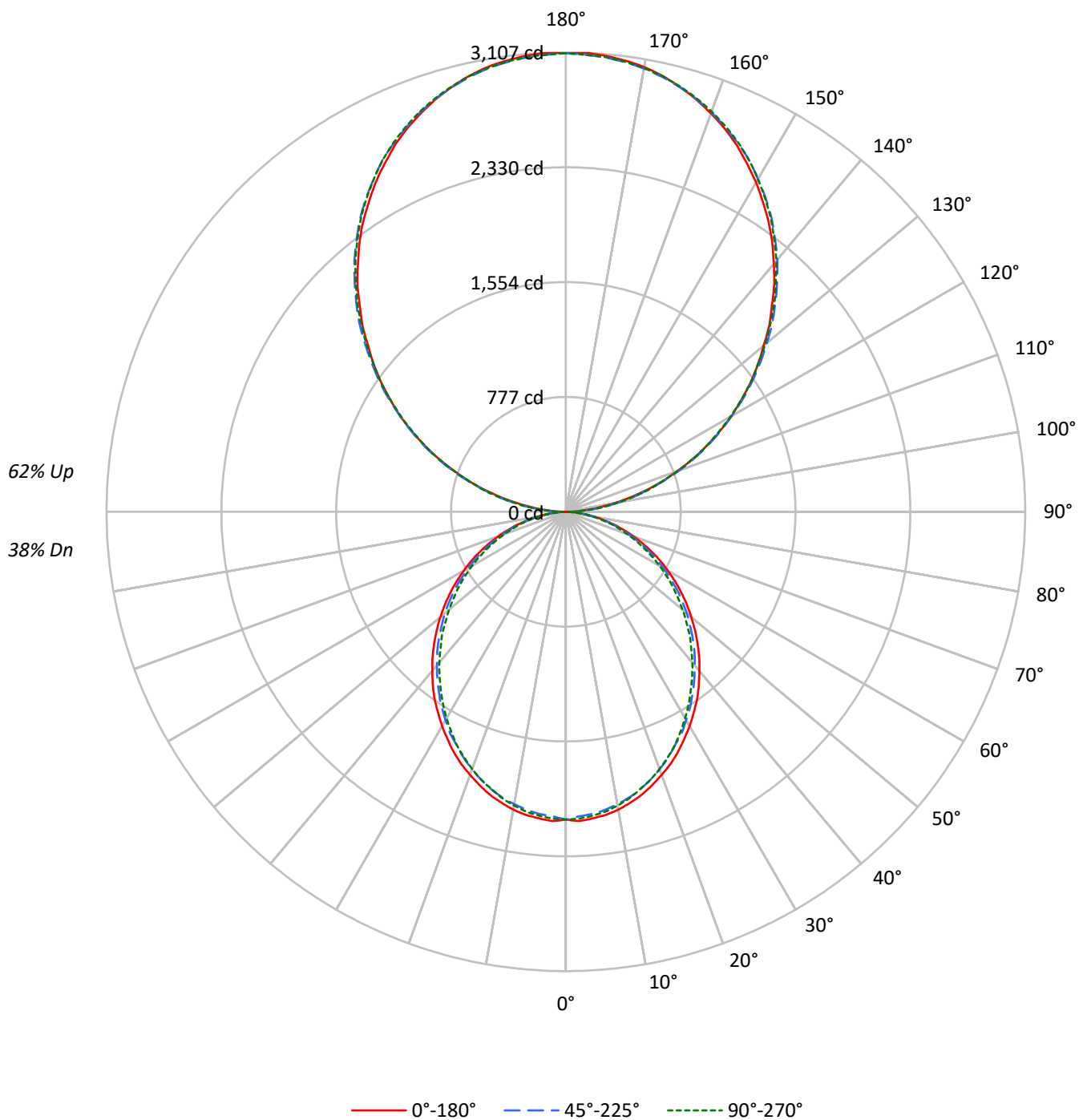
Lumens per Lamp: N/A
Luminaire Lumens: 13977.6 lumens
Efficiency: N/A
Efficacy: 101.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 138.1
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: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-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	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45
1	95	91	87	84	86	83	79	76	67	65	63	53	51	50	40	39	38
2	87	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27
4	72	62	54	48	65	56	49	44	46	41	37	37	33	30	28	25	23
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	36	31	51	41	34	29	33	28	24	27	23	20	21	18	16
8	52	40	32	27	47	37	30	25	30	25	22	25	21	18	19	16	14
9	48	37	29	24	44	34	27	23	28	23	19	23	19	16	17	15	13
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1654	1654	1654
5°	1657	1631	1642
10°	1643	1609	1619
15°	1619	1582	1585
20°	1586	1545	1549
25°	1554	1501	1508
30°	1513	1460	1456
35°	1475	1412	1400
40°	1427	1363	1348
45°	1380	1314	1294
50°	1328	1263	1231
55°	1274	1204	1174
60°	1213	1133	1108
65°	1146	1060	1031
70°	1061	971	947
75°	943	865	870
80°	801	729	723
85°	579	494	479

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2417 cd/sqm

TEST NUMBER: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.9	1.4
10°-20°	551.3	3.9
20°-30°	810.2	5.8
30°-40°	941.0	6.7
40°-50°	939.8	6.7
50°-60°	819.5	5.9
60°-70°	605.8	4.3
70°-80°	342.7	2.5
80°-90°	99.3	0.7
90°-100°	192.0	1.4
100°-110°	609.9	4.4
110°-120°	1043.8	7.5
120°-130°	1372.7	9.8
130°-140°	1540.8	11.0
140°-150°	1511.0	10.8
150°-160°	1267.5	9.1
160°-170°	840.6	6.0
170°-180°	293.8	2.1
0°-30°	1557.4	11.1
0°-40°	2498.4	17.9
0°-60°	4257.8	30.5
0°-90°	5305.6	38.0
90°-120°	1845.7	13.2
90°-150°	6270.1	44.9
90°-180°	8672.0	62.0
0°-180°	13977.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2082	2082	2082	2082	2082	
5°	2082	2074	2052	2068	2064	198
15°	1982	1970	1944	1952	1942	558
25°	1794	1778	1744	1748	1744	825
35°	1548	1528	1495	1483	1473	966
45°	1259	1245	1215	1193	1185	972
55°	953	941	917	893	883	852
65°	643	631	611	592	583	635
75°	336	332	322	310	314	359
85°	82	80	78	72	70	91
90°	3	34	92	86	89	14
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	

TEST NUMBER: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2081.8	2081.8	2081.8	2081.8	2081.8
2.5°	2093.9	2083.9	2061.8	2081.8	2078.0
5°	2081.8	2073.9	2051.8	2067.8	2064.0
7.5°	2067.8	2055.9	2033.8	2050.0	2045.9
10°	2045.9	2031.9	2007.9	2023.8	2017.9
12.5°	2015.8	2003.9	1979.9	1989.9	1985.8
15°	1981.7	1969.9	1943.8	1951.9	1941.9
17.5°	1939.7	1927.9	1901.8	1911.6	1901.8
20°	1893.6	1881.8	1853.7	1859.7	1851.8
22.5°	1847.8	1829.7	1803.6	1803.6	1799.6
25°	1793.6	1777.7	1743.7	1747.5	1743.7
27.5°	1733.5	1719.5	1693.5	1687.7	1677.7
30°	1673.7	1657.4	1627.5	1621.6	1613.5
32.5°	1609.4	1597.6	1565.5	1553.4	1545.3
35°	1547.5	1527.5	1495.4	1483.3	1473.3
37.5°	1477.4	1459.3	1427.3	1413.2	1403.2
40°	1405.3	1389.2	1357.2	1339.3	1331.2
42.5°	1335.2	1319.1	1287.3	1267.1	1255.2
45°	1259.3	1245.2	1215.0	1193.2	1185.1
47.5°	1185.1	1171.1	1139.1	1117.0	1105.0
50°	1107.0	1097.0	1069.0	1040.9	1030.9
52.5°	1030.9	1016.9	991.0	968.9	954.9
55°	953.0	940.8	916.9	892.9	882.9
57.5°	874.9	864.9	838.7	814.8	806.6
60°	796.7	788.8	760.8	738.7	732.7
62.5°	720.6	706.6	686.6	666.6	658.6
65°	642.7	630.6	610.6	592.5	582.6
67.5°	562.6	552.4	534.6	520.6	512.5
70°	488.5	480.5	462.4	448.4	440.5
72.5°	412.4	404.4	394.4	380.4	374.4
75°	336.2	332.4	322.2	310.3	314.3
77.5°	268.2	260.2	256.1	250.2	244.2
80°	200.3	198.1	194.1	188.2	184.1
82.5°	136.2	136.2	134.2	126.2	126.2
85°	81.9	80.1	78.1	72.0	70.1
87.5°	36.1	32.1	28.0	22.1	20.0
90°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2

TEST NUMBER: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2

TEST NUMBER: P923738

CATALOG NUMBER: DFN2DIP-TR4F0-060D110US940-FLLFLL

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	7.78	8.55	8.84	9.61	11.04	7.35	8.12	8.41	9.17	10.61
	3H	9.44	10.12	10.50	11.19	12.64	8.97	9.65	10.03	10.72	12.17
	4H	10.02	10.67	11.10	11.74	13.20	9.55	10.20	10.62	11.26	12.72
	6H	10.41	11.01	11.50	12.08	13.55	9.94	10.54	11.02	11.61	13.08
	8H	10.52	11.08	11.61	12.17	13.64	10.04	10.61	11.13	11.70	13.16
	12H	10.56	11.10	11.65	12.18	13.67	10.08	10.62	11.17	11.70	13.19
4H	2H	8.23	8.88	9.32	9.95	11.41	7.89	8.54	8.97	9.61	11.07
	3H	10.09	10.63	11.18	11.73	13.20	9.70	10.24	10.79	11.34	12.81
	4H	10.80	11.30	11.90	12.38	13.88	10.40	10.89	11.49	11.98	13.47
	6H	11.31	11.74	12.41	12.85	14.33	10.90	11.33	12.00	12.44	13.92
	8H	11.46	11.86	12.56	12.96	14.46	11.05	11.44	12.15	12.55	14.05
	12H	11.53	11.89	12.65	13.00	14.51	11.10	11.46	12.22	12.58	14.09
8H	4H	10.99	11.39	12.09	12.49	13.99	10.63	11.03	11.73	12.13	13.63
	6H	11.62	11.95	12.74	13.09	14.59	11.25	11.58	12.38	12.73	14.23
	8H	11.84	12.12	12.97	13.25	14.77	11.47	11.76	12.60	12.88	14.40
	12H	11.96	12.22	13.10	13.34	14.89	11.58	11.83	12.71	12.95	14.51
12H	4H	10.97	11.33	12.09	12.45	13.95	10.62	10.98	11.74	12.09	13.60
	6H	11.65	11.93	12.78	13.06	14.58	11.29	11.58	12.42	12.71	14.23
	8H	11.88	12.14	13.02	13.26	14.81	11.53	11.78	12.66	12.90	14.46