

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: P923802

Luminaire Tested: DFN2DIP-TR4F0-080D090US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923802
REPORT IS A COMBINATION OF REPORTS P900467 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D090US940-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

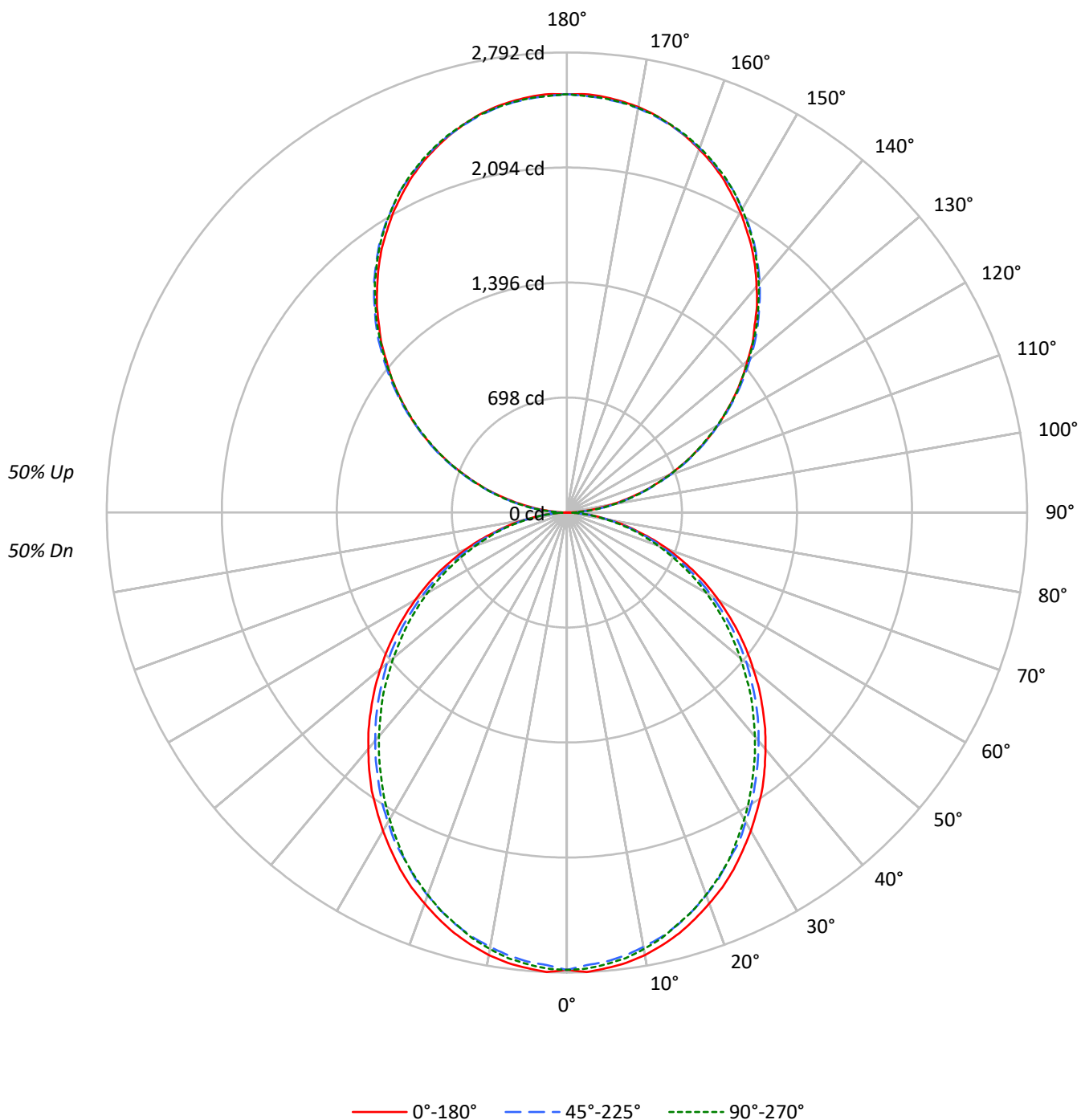
Lumens per Lamp: N/A
Luminaire Lumens: 14164.8 lumens
Efficiency: N/A
Efficacy: 99.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P923802

CATALOG NUMBER: DFN2DIP-TR4F0-080D090US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923802

CATALOG NUMBER: DFN2DIP-TR4F0-080D090US940-FLLFLL

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	56
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	75	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	63	56	50	68	59	52	46	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	25	25	25	22
6	63	51	43	37	58	47	40	35	40	35	31	34	30	26	28	25	22	22	22	20
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	22	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°	2205	2205	2205
5°	2209	2174	2189
10°	2191	2145	2159
15°	2159	2110	2113
20°	2115	2061	2065
25°	2072	2002	2011
30°	2018	1947	1941
35°	1966	1883	1867
40°	1903	1818	1797
45°	1840	1753	1725
50°	1771	1684	1642
55°	1699	1605	1565
60°	1617	1511	1478
65°	1528	1414	1374
70°	1415	1295	1263
75°	1257	1153	1160
80°	1069	972	964
85°	773	659	639

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1979 cd/sqm

TEST NUMBER: P923802

CATALOG NUMBER: DFN2DIP-TR4F0-080D090US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	1.8
10°-20°	735.1	5.2
20°-30°	1080.3	7.6
30°-40°	1254.7	8.9
40°-50°	1253.1	8.8
50°-60°	1092.7	7.7
60°-70°	807.7	5.7
70°-80°	457.0	3.2
80°-90°	127.8	0.9
90°-100°	157.1	1.1
100°-110°	499.0	3.5
110°-120°	854.0	6.0
120°-130°	1123.1	7.9
130°-140°	1260.7	8.9
140°-150°	1236.2	8.7
150°-160°	1037.0	7.3
160°-170°	687.7	4.9
170°-180°	240.4	1.7
0°-30°	2076.6	14.7
0°-40°	3331.3	23.5
0°-60°	5677.0	40.1
0°-90°	7069.6	49.9
90°-120°	1510.1	10.7
90°-150°	5130.1	36.2
90°-180°	7095.0	50.1
0°-180°	14164.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	2	28	75	70	73	14
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	

TEST NUMBER: P923802

CATALOG NUMBER: DFN2DIP-TR4F0-080D090US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6

TEST NUMBER: P923802

CATALOG NUMBER: DFN2DIP-TR4F0-080D090US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2

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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	10.00	10.87	10.96	11.84	13.11	9.57	10.43	10.53	11.41	12.68
	3H	11.66	12.44	12.63	13.42	14.71	11.19	11.96	12.16	12.95	14.24
	4H	12.25	12.98	13.23	13.97	15.27	11.78	12.51	12.76	13.50	14.80
	6H	12.65	13.32	13.65	14.32	15.63	12.18	12.85	13.17	13.84	15.16
	8H	12.76	13.40	13.76	14.41	15.72	12.28	12.92	13.28	13.93	15.24
	12H	12.80	13.41	13.81	14.42	15.75	12.32	12.93	13.33	13.94	15.27
4H	2H	10.47	11.20	11.45	12.18	13.49	10.12	10.85	11.11	11.84	13.14
	3H	12.33	12.94	13.33	13.96	15.27	11.94	12.55	12.94	13.56	14.88
	4H	13.05	13.60	14.05	14.61	15.95	12.64	13.20	13.65	14.21	15.55
	6H	13.56	14.04	14.58	15.07	16.41	13.15	13.63	14.17	14.66	16.00
	8H	13.71	14.16	14.73	15.18	16.54	13.30	13.75	14.32	14.77	16.12
	12H	13.78	14.19	14.82	15.23	16.59	13.36	13.77	14.40	14.81	16.17
8H	4H	13.24	13.69	14.26	14.72	16.07	12.88	13.33	13.90	14.36	15.71
	6H	13.87	14.25	14.92	15.31	16.66	13.51	13.88	14.55	14.95	16.30
	8H	14.09	14.42	15.15	15.47	16.84	13.73	14.05	14.78	15.10	16.47
	12H	14.23	14.51	15.28	15.56	16.97	13.84	14.13	14.90	15.18	16.59
12H	4H	13.23	13.63	14.27	14.67	16.03	12.88	13.28	13.91	14.32	15.68
	6H	13.90	14.23	14.95	15.28	16.65	13.55	13.88	14.60	14.93	16.30
	8H	14.15	14.43	15.20	15.48	16.89	13.79	14.08	14.84	15.12	16.53