

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: P918415

Luminaire Tested: DFN2DIP-TR4F0-100D080US930-FLLONL

Issue Date: 11/21/2024

**Test Information**

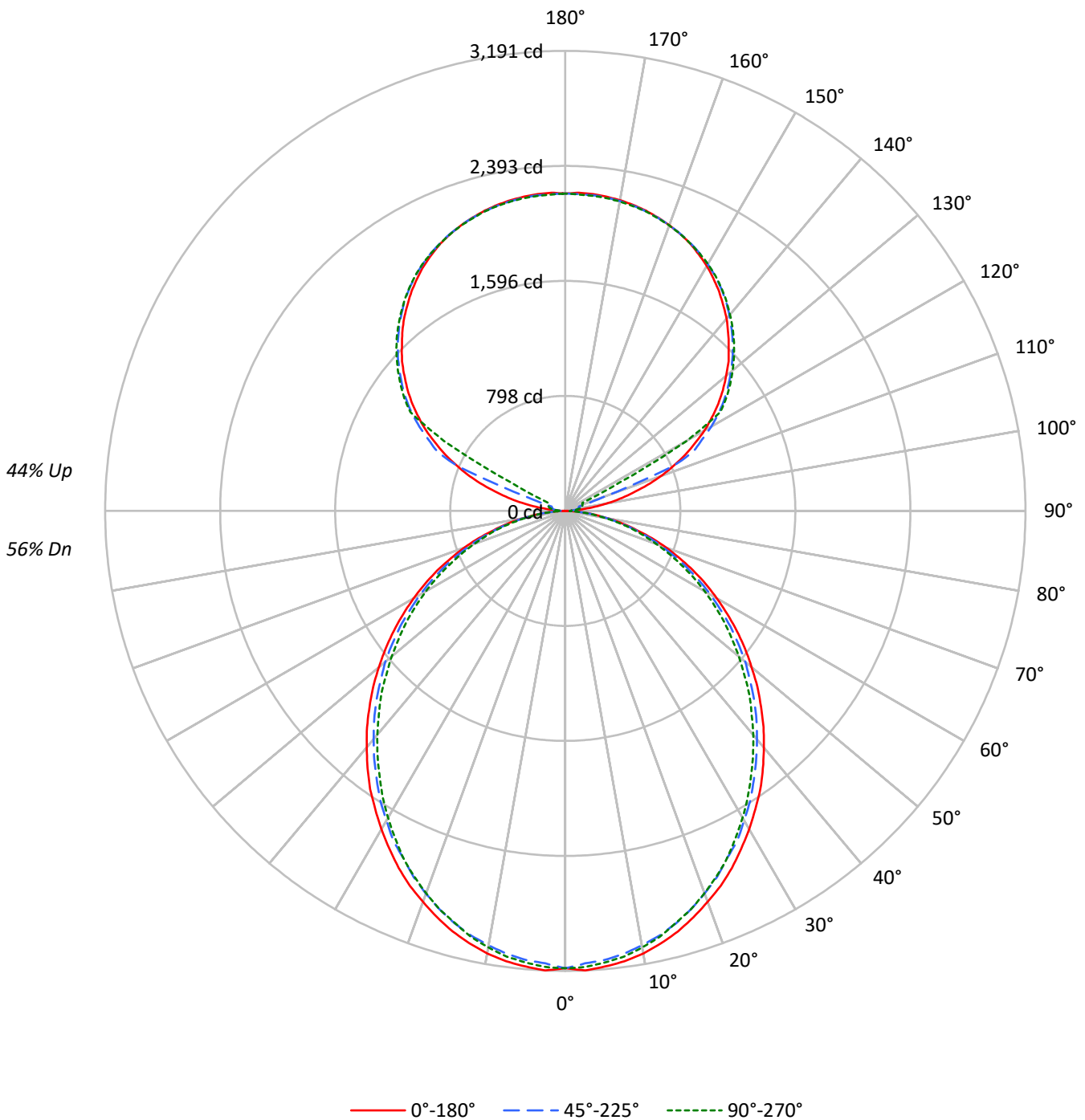
Test Method: LM-79-2019  
Report Number: P918415  
REPORT IS A COMBINATION OF REPORTS P901973 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-100D080US930-FLLONL  
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14528.6 lumens  
Efficiency: N/A  
Efficacy: 90.7 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): 160.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P918415  
CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P918415  
 CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	56			56
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52	47			47
2	90	83	76	71	84	77	72	67	66	62	59	57	54	51	48	46	44	39			39
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	39	37	33			33
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32	29			29
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28	25			25
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25	22			22
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22	19			19
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20	17			17
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	16			16
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14			14

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	2520	2520	2520
5°	2524	2485	2502
10°	2504	2452	2468
15°	2467	2411	2415
20°	2417	2355	2361
25°	2368	2288	2298
30°	2306	2226	2218
35°	2247	2152	2134
40°	2175	2078	2053
45°	2103	2003	1971
50°	2024	1925	1876
55°	1941	1834	1789
60°	1848	1727	1689
65°	1746	1616	1571
70°	1617	1480	1443
75°	1437	1318	1326
80°	1221	1111	1101
85°	883	754	730

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2103 cd/sqm



TEST NUMBER: P918415

CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	298.6	2.1
10°-20°	840.1	5.8
20°-30°	1234.6	8.5
30°-40°	1433.9	9.9
40°-50°	1432.1	9.9
50°-60°	1248.8	8.6
60°-70°	923.1	6.4
70°-80°	522.3	3.6
80°-90°	141.7	1.0
90°-100°	72.6	0.5
100°-110°	270.6	1.9
110°-120°	717.6	4.9
120°-130°	1190.2	8.2
130°-140°	1264.3	8.7
140°-150°	1175.0	8.1
150°-160°	944.7	6.5
160°-170°	608.7	4.2
170°-180°	209.5	1.4
0°-30°	2373.3	16.3
0°-40°	3807.2	26.2
0°-60°	6488.2	44.7
0°-90°	8075.3	55.6
90°-120°	1060.8	7.3
90°-150°	4690.4	32.3
90°-180°	6453.0	44.4
0°-180°	14528.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3172	3172	3172	3172	3172	
5°	3172	3160	3127	3151	3145	301
15°	3020	3002	2962	2974	2959	851
25°	2733	2709	2657	2663	2657	1258
35°	2358	2328	2279	2260	2245	1473
45°	1919	1898	1852	1818	1806	1481
55°	1452	1434	1397	1361	1345	1298
65°	979	961	930	903	888	968
75°	512	506	491	473	479	547
85°	125	122	119	110	107	139
90°	2	19	32	40	43	13
95°	104	51	62	70	68	123
105°	484	532	97	115	121	517
115°	916	943	983	245	131	902
125°	1295	1316	1346	1357	1362	1155
135°	1602	1628	1642	1658	1655	1238
145°	1859	1857	1884	1895	1887	1163
155°	2047	2032	2052	2061	2048	943
165°	2157	2147	2152	2163	2152	609
175°	2206	2195	2198	2209	2193	210
180°	2201	2201	2201	2201	2201	



TEST NUMBER: P918415

CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3172.4	3172.4	3172.4	3172.4	3172.4
2.5°	3190.8	3175.6	3141.9	3172.4	3166.5
5°	3172.4	3160.4	3126.8	3151.0	3145.2
7.5°	3151.0	3132.9	3099.2	3123.8	3117.7
10°	3117.7	3096.3	3059.7	3084.0	3075.0
12.5°	3071.7	3053.6	3017.0	3032.3	3026.1
15°	3019.9	3001.8	2962.0	2974.3	2959.1
17.5°	2955.9	2937.8	2897.9	2913.1	2897.9
20°	2885.6	2867.5	2824.8	2833.8	2821.8
22.5°	2815.7	2788.2	2748.4	2748.4	2742.3
25°	2733.2	2708.9	2657.1	2662.9	2657.1
27.5°	2641.6	2620.2	2580.7	2571.7	2556.4
30°	2550.3	2525.7	2480.1	2471.0	2458.7
32.5°	2452.6	2434.5	2385.6	2367.1	2354.8
35°	2358.1	2327.7	2278.8	2260.3	2245.1
37.5°	2251.3	2223.7	2174.9	2153.5	2138.3
40°	2141.5	2116.9	2068.1	2040.9	2028.6
42.5°	2034.7	2010.1	1961.6	1930.9	1912.8
45°	1918.9	1897.5	1851.5	1818.2	1806.0
47.5°	1806.0	1784.6	1735.7	1702.0	1683.9
50°	1686.9	1671.6	1628.9	1586.2	1571.0
52.5°	1571.0	1549.6	1510.1	1476.5	1455.1
55°	1452.2	1433.8	1397.2	1360.6	1345.4
57.5°	1333.1	1317.8	1278.1	1241.5	1229.2
60°	1214.0	1202.0	1159.3	1125.6	1116.6
62.5°	1098.1	1076.8	1046.4	1015.9	1003.6
65°	979.3	960.9	930.5	902.9	887.8
67.5°	857.4	841.8	814.6	793.3	781.0
70°	744.4	732.1	704.6	683.2	671.2
72.5°	628.5	616.2	601.0	579.7	570.5
75°	512.3	506.5	491.0	472.9	479.0
77.5°	408.8	396.5	390.3	381.2	372.2
80°	305.2	302.0	295.8	286.7	280.6
82.5°	207.5	207.5	204.6	192.2	192.2
85°	124.9	122.1	119.1	109.7	106.8
87.5°	55.0	48.8	42.7	33.7	30.4
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.5	50.9	62.0	70.2	68.5
97.5°	186.3	55.8	81.1	86.1	87.6
100°	282.0	63.8	90.8	103.5	106.6
102.5°	387.0	383.9	94.0	111.4	116.3
105°	484.2	532.1	97.2	114.6	121.1
107.5°	597.3	637.0	100.4	117.8	124.3
110°	705.7	739.0	278.8	119.5	125.8



TEST NUMBER: P918415

CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	807.6	836.2	809.2	122.5	127.5
115°	915.8	942.9	982.8	245.3	130.7
117.5°	1009.8	1041.6	1068.9	840.9	423.7
120°	1115.0	1138.8	1167.6	1186.7	971.6
122.5°	1204.0	1229.6	1261.6	1271.0	1272.8
125°	1294.9	1315.6	1345.9	1357.1	1361.8
127.5°	1377.7	1400.0	1424.1	1439.9	1441.4
130°	1455.8	1481.3	1498.8	1516.4	1514.8
132.5°	1535.5	1556.2	1573.7	1588.0	1586.5
135°	1602.4	1627.9	1642.1	1658.2	1655.0
137.5°	1672.4	1691.5	1707.6	1723.5	1718.7
140°	1740.8	1753.7	1771.2	1785.5	1777.5
142.5°	1798.4	1809.5	1830.1	1842.8	1834.8
145°	1858.9	1857.2	1884.2	1895.4	1887.4
147.5°	1911.3	1906.6	1933.6	1941.6	1935.3
150°	1962.3	1951.2	1976.7	1986.1	1978.2
152.5°	2005.3	1992.6	2016.4	2026.1	2014.9
155°	2046.7	2032.5	2051.6	2061.1	2048.4
157.5°	2080.2	2067.5	2081.9	2093.0	2080.2
160°	2108.9	2099.3	2108.9	2118.4	2107.2
162.5°	2134.3	2124.8	2132.7	2143.9	2129.6
165°	2156.6	2147.2	2151.9	2163.0	2151.9
167.5°	2174.2	2164.5	2169.4	2180.6	2166.2
170°	2188.6	2178.9	2182.1	2193.3	2178.9
172.5°	2198.0	2188.6	2191.8	2202.9	2188.6
175°	2206.0	2194.8	2198.0	2209.1	2193.3
177.5°	2209.1	2198.0	2199.7	2210.8	2196.5
180°	2201.2	2201.2	2201.2	2201.2	2201.2



TEST NUMBER: P918415  
 CATALOG NUMBER: DFN2DIP-TR4F0-100D080US930-FLLONL

**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	10.98	11.89	11.89	12.82	14.01	10.55	11.46	11.45	12.39	13.58
	3H	12.64	13.46	13.56	14.40	15.61	12.17	12.99	13.09	13.93	15.14
	4H	13.23	14.01	14.17	14.95	16.17	12.76	13.54	13.69	14.48	15.70
	6H	13.64	14.35	14.58	15.30	16.53	13.16	13.87	14.11	14.82	16.06
	8H	13.74	14.42	14.69	15.39	16.62	13.27	13.95	14.22	14.91	16.15
	12H	13.79	14.44	14.75	15.40	16.66	13.31	13.96	14.27	14.92	16.18
4H	2H	11.45	12.22	12.39	13.16	14.39	11.10	11.88	12.04	12.82	14.04
	3H	13.32	13.96	14.27	14.94	16.17	12.92	13.57	13.87	14.54	15.78
	4H	14.03	14.62	14.99	15.59	16.85	13.63	14.22	14.59	15.19	16.45
	6H	14.55	15.06	15.52	16.05	17.31	14.14	14.65	15.12	15.64	16.90
	8H	14.70	15.18	15.68	16.16	17.44	14.29	14.77	15.27	15.75	17.03
	12H	14.78	15.21	15.77	16.21	17.49	14.36	14.79	15.35	15.79	17.07
8H	4H	14.23	14.71	15.21	15.69	16.97	13.87	14.35	14.85	15.33	16.61
	6H	14.87	15.26	15.87	16.29	17.56	14.51	14.90	15.51	15.92	17.20
	8H	15.09	15.44	16.10	16.45	17.74	14.72	15.07	15.73	16.08	17.37
	12H	15.22	15.53	16.24	16.54	17.87	14.84	15.15	15.85	16.15	17.49
12H	4H	14.22	14.65	15.22	15.65	16.93	13.87	14.30	14.86	15.30	16.58
	6H	14.90	15.25	15.91	16.26	17.55	14.55	14.90	15.56	15.91	17.20
	8H	15.14	15.45	16.16	16.46	17.79	14.79	15.09	15.80	16.10	17.44