

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: P915657

Luminaire Tested: DFN2DIP-TR4F0-090D090US927-RLONL

Issue Date: 11/21/2024

**Test Information**

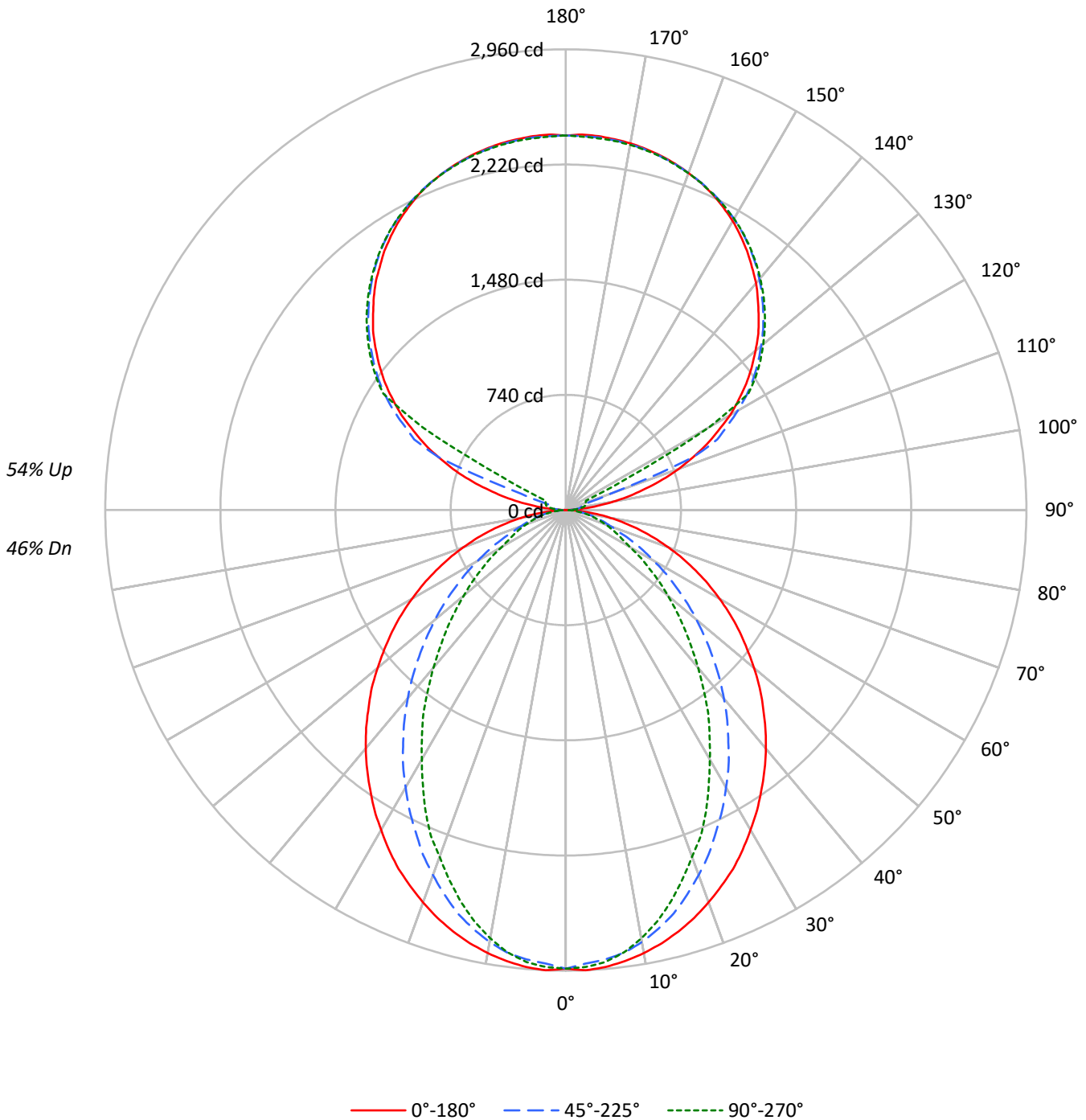
Test Method: LM-79-2019  
Report Number: P915657  
REPORT IS A COMBINATION OF REPORTS P901990 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-090D090US927-RLLONL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13118.5 lumens  
Efficiency: N/A  
Efficacy: 84.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 155.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.099  
Total Harmonic Distortion (THDi): 0.979  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P915657  
CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P915657  
 CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLLONL

**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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13			13

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

	0°	45°	90°
0°	2341	2341	2341
5°	2345	2304	2318
10°	2322	2259	2243
15°	2290	2184	2126
20°	2247	2081	1983
25°	2204	1966	1845
30°	2146	1847	1669
35°	2089	1720	1516
40°	2031	1589	1339
45°	1964	1443	1179
50°	1894	1295	1023
55°	1821	1138	872
60°	1737	973	718
65°	1640	806	646
70°	1523	650	585
75°	1376	572	532
80°	1163	480	461
85°	810	320	346

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1964 cd/sqm



TEST NUMBER: P915657

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.2	2.1
10°-20°	758.1	5.8
20°-30°	1064.4	8.1
30°-40°	1160.3	8.8
40°-50°	1066.4	8.1
50°-60°	837.5	6.4
60°-70°	545.1	4.2
70°-80°	280.6	2.1
80°-90°	75.9	0.6
90°-100°	79.3	0.6
100°-110°	295.8	2.3
110°-120°	784.4	6.0
120°-130°	1301.0	9.9
130°-140°	1382.0	10.5
140°-150°	1284.4	9.8
150°-160°	1032.6	7.9
160°-170°	665.4	5.1
170°-180°	229.0	1.7
0°-30°	2098.7	16.0
0°-40°	3258.9	24.8
0°-60°	5162.8	39.4
0°-90°	6064.4	46.2
90°-120°	1159.5	8.8
90°-150°	5127.0	39.1
90°-180°	7054.0	53.8
0°-180°	13118.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	2	21	35	44	47	12
95°	113	56	68	77	75	134
105°	529	582	106	125	132	566
115°	1001	1031	1074	268	143	986
125°	1415	1438	1471	1483	1489	1262
135°	1752	1780	1795	1813	1809	1353
145°	2032	2030	2060	2072	2063	1271
155°	2237	2222	2243	2253	2239	1031
165°	2357	2347	2352	2364	2352	666
175°	2411	2399	2403	2415	2398	229
180°	2406	2406	2406	2406	2406	



TEST NUMBER: P915657

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.9
97.5°	203.7	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.3	113.1	116.6
102.5°	423.0	419.7	102.7	121.8	127.1
105°	529.3	581.6	106.2	125.3	132.3
107.5°	652.9	696.3	109.8	128.8	135.9
110°	771.3	807.8	304.8	130.6	137.5



TEST NUMBER: P915657

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	882.8	914.0	884.5	134.0	139.3
115°	1001.1	1030.6	1074.3	268.2	142.8
117.5°	1103.8	1138.6	1168.3	919.2	463.1
120°	1218.8	1244.8	1276.3	1297.1	1062.1
122.5°	1316.2	1344.1	1379.0	1389.3	1391.2
125°	1415.4	1438.1	1471.2	1483.4	1488.6
127.5°	1505.9	1530.3	1556.6	1574.0	1575.6
130°	1591.3	1619.3	1638.3	1657.5	1655.9
132.5°	1678.4	1701.1	1720.1	1735.9	1734.2
135°	1751.6	1779.5	1795.0	1812.6	1809.1
137.5°	1828.1	1849.0	1866.5	1883.9	1878.7
140°	1902.9	1917.0	1936.0	1951.7	1943.1
142.5°	1965.8	1978.0	2000.5	2014.4	2005.7
145°	2031.9	2030.0	2059.7	2071.9	2063.2
147.5°	2089.2	2084.1	2113.6	2122.3	2115.4
150°	2145.1	2132.9	2160.8	2171.1	2162.4
152.5°	2192.0	2178.1	2204.2	2214.7	2202.5
155°	2237.3	2221.8	2242.6	2253.0	2239.1
157.5°	2273.9	2260.0	2275.7	2287.9	2273.9
160°	2305.2	2294.7	2305.2	2315.6	2303.4
162.5°	2333.0	2322.6	2331.3	2343.5	2327.8
165°	2357.4	2347.0	2352.2	2364.4	2352.2
167.5°	2376.6	2366.1	2371.4	2383.6	2367.9
170°	2392.3	2381.8	2385.3	2397.5	2381.8
172.5°	2402.7	2392.3	2395.8	2408.0	2392.3
175°	2411.3	2399.1	2402.7	2414.8	2397.5
177.5°	2414.8	2402.7	2404.5	2416.7	2401.0
180°	2406.2	2406.2	2406.2	2406.2	2406.2



TEST NUMBER: P915657  
 CATALOG NUMBER: DFN2DIP-TR4F0-090D090US927-RLONL

**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	9.73	10.53	10.73	11.54	12.86	5.71	6.51	6.70	7.51	8.84
	3H	11.41	12.12	12.42	13.14	14.48	6.89	7.61	7.90	8.62	9.97
	4H	12.02	12.69	13.04	13.71	15.06	7.34	8.02	8.36	9.04	10.39
	6H	12.44	13.06	13.46	14.08	15.45	7.66	8.29	8.69	9.31	10.67
	8H	12.56	13.15	13.60	14.19	15.55	7.75	8.35	8.79	9.38	10.75
	12H	12.62	13.18	13.66	14.21	15.60	7.80	8.36	8.84	9.39	10.78
4H	2H	9.75	10.43	10.77	11.44	12.80	6.30	6.98	7.32	7.99	9.35
	3H	11.58	12.14	12.61	13.18	14.55	7.65	8.21	8.68	9.25	10.62
	4H	12.27	12.78	13.31	13.82	15.21	8.20	8.71	9.24	9.74	11.14
	6H	12.78	13.22	13.83	14.28	15.67	8.61	9.06	9.66	10.11	11.50
	8H	12.95	13.37	14.00	14.42	15.82	8.74	9.15	9.79	10.21	11.61
	12H	13.05	13.42	14.12	14.48	15.89	8.81	9.18	9.88	10.24	11.65
8H	4H	12.23	12.64	13.28	13.69	15.10	8.47	8.89	9.52	9.94	11.34
	6H	12.80	13.14	13.87	14.23	15.63	8.99	9.33	10.07	10.42	11.82
	8H	13.01	13.31	14.09	14.39	15.81	9.18	9.48	10.26	10.56	11.98
	12H	13.15	13.41	14.23	14.48	15.94	9.30	9.56	10.39	10.64	12.10
12H	4H	12.18	12.55	13.25	13.62	15.03	8.48	8.85	9.54	9.91	11.32
	6H	12.77	13.07	13.85	14.15	15.57	9.04	9.34	10.12	10.42	11.84
	8H	12.99	13.25	14.08	14.33	15.79	9.25	9.51	10.33	10.58	12.05