

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: P921081

Luminaire Tested: DFN2DIP-TR4F0-080D100US935-RLONL

Issue Date: 11/21/2024

**Test Information**

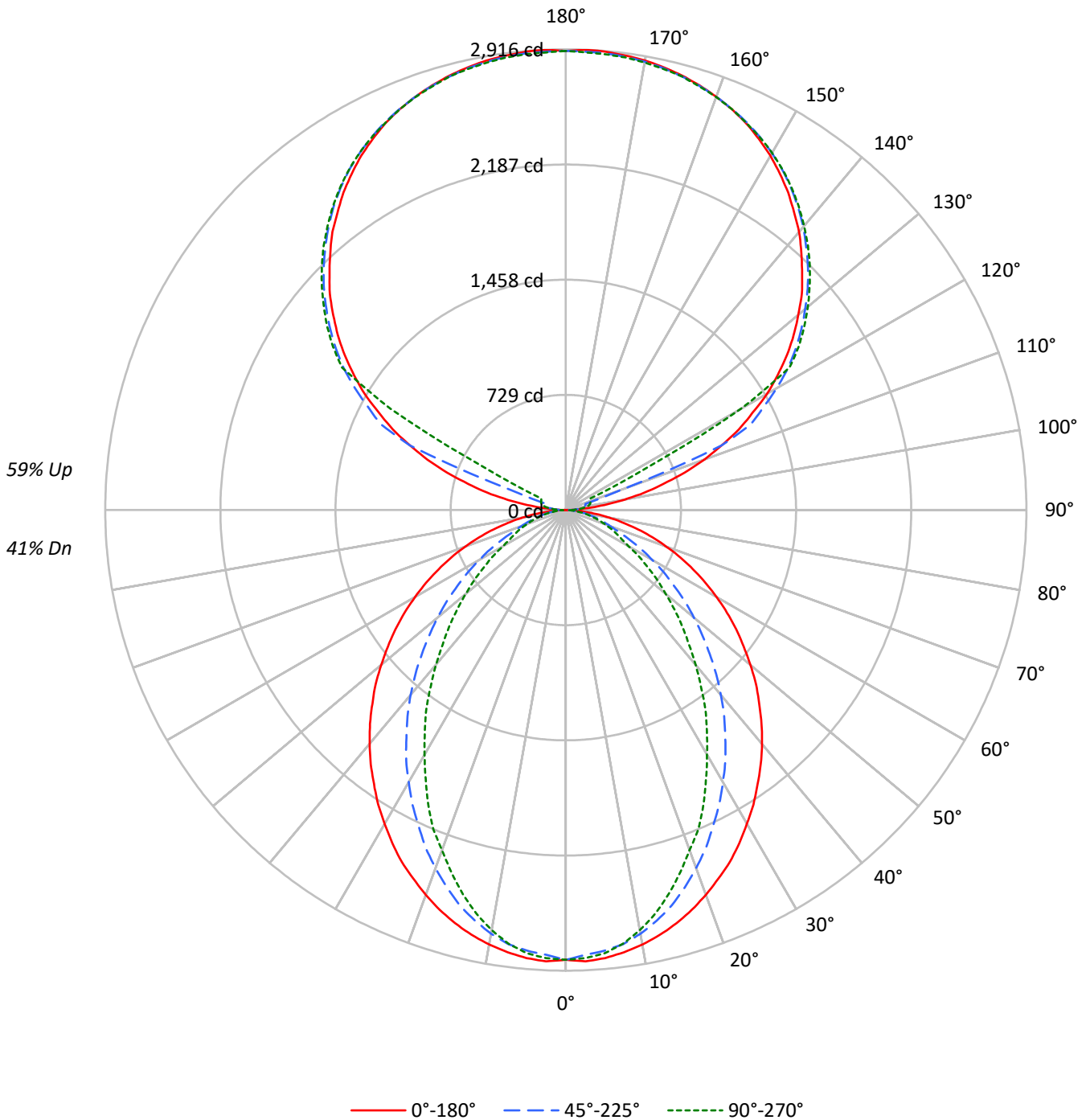
Test Method: LM-79-2019  
Report Number: P921081  
REPORT IS A COMBINATION OF REPORTS P902006 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-080D100US935-RLLONL  
Description: 4 foot, 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: 14378.7 lumens  
Efficiency: N/A  
Efficacy: 95.0 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): 151.4  
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

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### Luminous Intensity Polar Plot





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

RF	20				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	105	105	105	105	96	96	96	96	78	78	78	62	62	62	48	48	48	41	41	41	41
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41	35	35	35	35
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35	30	30	30	30
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30	26	26	26	26
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26	23	23	23	23
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23	20	20	20	20
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21	18	18	18	18
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19	16	16	16	16
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	21	19	17	14	14	14	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	13	13	13	13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	18	16	14	12	12	12	12

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

	0°	45°	90°
0°	2262	2262	2262
5°	2265	2226	2240
10°	2243	2182	2167
15°	2212	2110	2054
20°	2171	2010	1916
25°	2129	1899	1782
30°	2073	1785	1613
35°	2018	1662	1464
40°	1962	1535	1293
45°	1897	1394	1139
50°	1830	1251	988
55°	1760	1099	843
60°	1678	940	694
65°	1585	778	624
70°	1472	628	565
75°	1329	553	514
80°	1123	464	445
85°	783	309	334

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1897 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.8	1.9
10°-20°	732.4	5.1
20°-30°	1028.3	7.2
30°-40°	1120.9	7.8
40°-50°	1030.3	7.2
50°-60°	809.1	5.6
60°-70°	526.6	3.7
70°-80°	271.1	1.9
80°-90°	74.3	0.5
90°-100°	95.8	0.7
100°-110°	357.2	2.5
110°-120°	947.3	6.6
120°-130°	1571.2	10.9
130°-140°	1669.0	11.6
140°-150°	1551.1	10.8
150°-160°	1247.1	8.7
160°-170°	803.6	5.6
170°-180°	276.6	1.9
0°-30°	2027.6	14.1
0°-40°	3148.5	21.9
0°-60°	4987.8	34.7
0°-90°	5859.9	40.8
90°-120°	1400.3	9.7
90°-150°	6191.6	43.1
90°-180°	8519.0	59.2
0°-180°	14378.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2847	2847	2847	2847	2847	
5°	2847	2834	2800	2824	2816	270
15°	2708	2679	2592	2543	2517	763
25°	2458	2375	2205	2100	2061	1130
35°	2118	1986	1760	1597	1540	1326
45°	1731	1559	1288	1105	1043	1337
55°	1316	1116	837	683	634	1176
65°	889	680	448	361	353	881
75°	474	294	206	188	186	501
85°	111	57	49	49	49	127
90°	2	25	42	53	57	13
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1524
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2846.8	2846.8	2846.8	2846.8	2846.8
2.5°	2859.6	2846.8	2818.4	2844.3	2839.1
5°	2846.8	2834.0	2800.3	2823.6	2815.9
7.5°	2823.6	2808.2	2772.2	2782.3	2769.4
10°	2792.6	2774.7	2723.3	2715.3	2700.0
12.5°	2754.2	2730.9	2661.2	2645.8	2617.4
15°	2707.7	2679.3	2591.8	2542.9	2517.1
17.5°	2653.5	2612.3	2504.0	2447.5	2406.1
20°	2591.8	2540.1	2411.4	2347.2	2290.3
22.5°	2524.8	2465.5	2316.0	2228.5	2189.9
25°	2457.8	2375.3	2205.3	2099.8	2061.0
27.5°	2378.0	2290.3	2102.2	1981.2	1921.8
30°	2293.0	2194.9	1988.8	1857.6	1787.9
32.5°	2210.4	2091.9	1880.8	1726.1	1661.6
35°	2117.8	1986.3	1759.7	1597.4	1540.5
37.5°	2027.6	1885.8	1646.3	1468.3	1404.1
40°	1932.3	1777.8	1527.7	1344.8	1277.8
42.5°	1834.4	1669.6	1409.3	1218.6	1154.3
45°	1731.3	1558.6	1288.2	1105.1	1043.4
47.5°	1633.5	1450.6	1172.3	989.2	932.6
50°	1525.2	1342.4	1058.9	881.0	827.1
52.5°	1419.4	1226.1	950.6	780.7	731.8
55°	1316.4	1115.5	837.2	682.8	633.9
57.5°	1210.9	1004.8	736.9	592.6	551.3
60°	1102.6	896.6	631.1	499.9	458.7
62.5°	997.1	791.0	541.0	417.4	396.9
65°	888.9	680.0	448.2	360.8	352.8
67.5°	785.8	577.0	360.8	316.8	309.2
70°	677.6	476.7	298.8	273.0	262.7
72.5°	574.5	383.7	249.9	229.4	224.1
75°	474.0	293.6	206.1	188.0	185.6
77.5°	373.7	208.5	162.4	152.0	146.8
80°	280.7	149.6	123.6	113.4	113.4
82.5°	195.7	100.6	85.0	79.8	79.8
85°	110.7	56.6	48.9	48.9	48.9
87.5°	41.2	20.5	20.5	18.1	18.1
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.7	1955.5	1978.5	2001.6	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.3	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.0
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.5
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8



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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	9.05	9.81	10.09	10.85	12.25	5.02	5.78	6.06	6.82	8.22
	3H	10.72	11.40	11.77	12.45	13.87	6.21	6.89	7.25	7.94	9.35
	4H	11.33	11.97	12.39	13.02	14.45	6.65	7.30	7.71	8.35	9.78
	6H	11.74	12.34	12.81	13.39	14.83	6.97	7.56	8.04	8.62	10.06
	8H	11.87	12.43	12.94	13.50	14.93	7.06	7.62	8.14	8.70	10.13
	12H	11.93	12.46	13.01	13.53	14.98	7.10	7.64	8.18	8.70	10.16
4H	2H	9.06	9.70	10.13	10.75	12.18	5.61	6.25	6.68	7.30	8.73
	3H	10.88	11.42	11.96	12.50	13.93	6.95	7.49	8.03	8.57	10.01
	4H	11.57	12.06	12.65	13.13	14.59	7.50	7.99	8.58	9.06	10.52
	6H	12.08	12.50	13.17	13.60	15.05	7.92	8.34	9.00	9.43	10.88
	8H	12.26	12.65	13.34	13.73	15.20	8.04	8.44	9.13	9.52	10.99
	12H	12.35	12.70	13.45	13.80	15.28	8.11	8.46	9.21	9.56	11.03
8H	4H	11.53	11.93	12.62	13.01	14.48	7.77	8.17	8.86	9.25	10.72
	6H	12.10	12.42	13.21	13.55	15.01	8.29	8.61	9.40	9.74	11.21
	8H	12.31	12.60	13.43	13.71	15.19	8.48	8.77	9.60	9.88	11.36
	12H	12.45	12.70	13.57	13.80	15.33	8.60	8.85	9.72	9.95	11.48
12H	4H	11.48	11.84	12.59	12.94	14.41	7.78	8.13	8.88	9.23	10.70
	6H	12.07	12.36	13.19	13.47	14.95	8.34	8.62	9.46	9.73	11.22
	8H	12.29	12.54	13.41	13.64	15.17	8.55	8.80	9.67	9.90	11.43