

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: P907517

Luminaire Tested: DFN2DIP-TR4F0-100D110US835-RLONL

Issue Date: 11/21/2024

**Test Information**

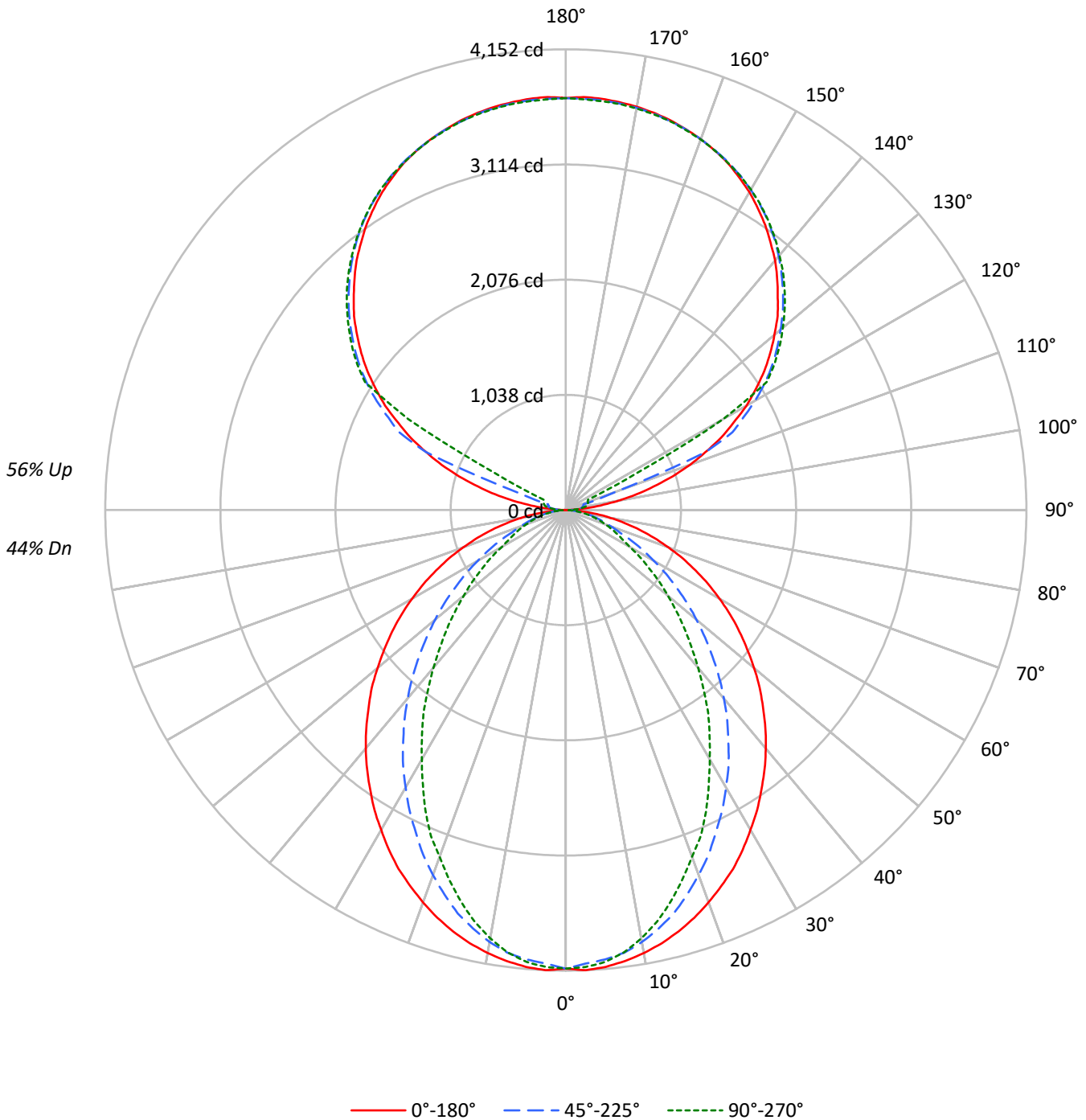
Test Method: LM-79-2019  
Report Number: P907517  
REPORT IS A COMBINATION OF REPORTS P902028 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-100D110US835-RLLONL  
Description: 4 foot, 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: 19389.9 lumens  
Efficiency: N/A  
Efficacy: 104.4 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): 185.8  
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

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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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50	44				44
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43	38				38
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37	32				32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28				28
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28	24				24
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25	21				21
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22	19				19
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20	17				17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15				15
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14				14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13				13

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

	0°	45°	90°
0°	3283	3283	3283
5°	3289	3231	3252
10°	3256	3168	3146
15°	3211	3063	2982
20°	3152	2919	2781
25°	3091	2757	2588
30°	3010	2591	2342
35°	2930	2413	2126
40°	2849	2228	1878
45°	2754	2023	1653
50°	2657	1817	1434
55°	2555	1596	1224
60°	2437	1365	1007
65°	2301	1130	906
70°	2136	911	820
75°	1930	803	746
80°	1630	674	646
85°	1136	449	485

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2754 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	387.3	2.0
10°-20°	1063.3	5.5
20°-30°	1492.9	7.7
30°-40°	1627.4	8.4
40°-50°	1495.7	7.7
50°-60°	1174.7	6.1
60°-70°	764.6	3.9
70°-80°	393.6	2.0
80°-90°	107.0	0.6
90°-100°	122.4	0.6
100°-110°	456.3	2.4
110°-120°	1210.3	6.2
120°-130°	2007.3	10.4
130°-140°	2132.2	11.0
140°-150°	1981.7	10.2
150°-160°	1593.2	8.2
160°-170°	1026.6	5.3
170°-180°	353.3	1.8
0°-30°	2943.6	15.2
0°-40°	4571.0	23.6
0°-60°	7241.3	37.3
0°-90°	8506.5	43.9
90°-120°	1789.0	9.2
90°-150°	7910.3	40.8
90°-180°	10883.0	56.1
0°-180°	19389.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4133	4133	4133	4133	4133	
5°	4133	4114	4066	4099	4088	392
15°	3931	3890	3763	3692	3654	1108
25°	3568	3448	3202	3048	2992	1641
35°	3075	2884	2555	2319	2236	1924
45°	2514	2263	1870	1604	1515	1941
55°	1911	1620	1216	991	920	1708
65°	1290	987	651	524	512	1279
75°	688	426	299	273	269	728
85°	161	82	71	71	71	184
90°	3	32	54	67	72	18
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4133.0	4133.0	4133.0	4133.0	4133.0
2.5°	4151.6	4133.0	4091.7	4129.4	4121.9
5°	4133.0	4114.3	4065.5	4099.3	4088.1
7.5°	4099.3	4077.0	4024.6	4039.3	4020.7
10°	4054.4	4028.2	3953.6	3942.1	3919.9
12.5°	3998.5	3964.7	3863.5	3841.3	3800.0
15°	3931.0	3889.7	3762.7	3691.7	3654.4
17.5°	3852.4	3792.5	3635.4	3553.2	3493.3
20°	3762.7	3687.7	3500.8	3407.6	3325.0
22.5°	3665.5	3579.4	3362.3	3235.4	3179.4
25°	3568.3	3448.5	3201.6	3048.4	2992.1
27.5°	3452.4	3325.0	3052.0	2876.2	2790.1
30°	3329.0	3186.5	2887.3	2696.9	2595.7
32.5°	3209.2	3036.9	2730.6	2506.0	2412.3
35°	3074.6	2883.8	2554.8	2319.1	2236.5
37.5°	2943.7	2737.7	2390.1	2131.8	2038.5
40°	2805.2	2581.0	2217.9	1952.4	1855.2
42.5°	2663.1	2423.8	2046.1	1769.1	1675.8
45°	2513.5	2262.7	1870.3	1604.4	1514.7
47.5°	2371.5	2106.0	1702.0	1436.1	1354.0
50°	2214.3	1948.8	1537.3	1279.0	1200.8
52.5°	2060.7	1780.2	1380.2	1133.3	1062.3
55°	1911.1	1619.5	1215.5	991.3	920.2
57.5°	1758.0	1458.7	1069.9	860.3	800.4
60°	1600.8	1301.6	916.3	725.8	665.9
62.5°	1447.6	1148.4	785.3	606.0	576.2
65°	1290.5	987.3	650.8	523.8	512.3
67.5°	1140.9	837.7	523.8	459.9	448.8
70°	983.7	692.1	433.7	396.4	381.4
72.5°	834.1	557.1	362.7	332.9	325.4
75°	688.1	426.2	299.2	273.0	269.4
77.5°	542.5	302.8	235.7	220.6	213.1
80°	407.5	217.1	179.4	164.7	164.7
82.5°	284.1	146.0	123.4	115.9	115.9
85°	160.7	82.1	71.0	71.0	71.0
87.5°	59.9	29.8	29.8	26.2	26.2
90°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4



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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	10.67	11.45	11.69	12.47	13.83	6.65	7.43	7.66	8.45	9.81
	3H	12.35	13.05	13.37	14.07	15.45	7.83	8.53	8.86	9.56	10.94
	4H	12.95	13.61	13.99	14.64	16.03	8.28	8.94	9.32	9.97	11.36
	6H	13.37	13.98	14.42	15.02	16.41	8.60	9.21	9.65	10.24	11.64
	8H	13.50	14.07	14.55	15.13	16.52	8.69	9.27	9.74	10.32	11.71
	12H	13.56	14.11	14.61	15.15	16.57	8.73	9.28	9.79	10.33	11.74
4H	2H	10.68	11.35	11.73	12.38	13.76	7.23	7.90	8.28	8.93	10.31
	3H	12.51	13.06	13.56	14.12	15.52	8.58	9.13	9.63	10.19	11.59
	4H	13.20	13.70	14.26	14.75	16.18	9.13	9.63	10.19	10.68	12.10
	6H	13.71	14.14	14.78	15.22	16.63	9.55	9.98	10.61	11.05	12.47
	8H	13.89	14.29	14.95	15.36	16.79	9.67	10.08	10.74	11.14	12.58
	12H	13.98	14.34	15.06	15.42	16.86	9.74	10.10	10.82	11.18	12.62
8H	4H	13.16	13.57	14.23	14.63	16.07	9.40	9.81	10.47	10.87	12.31
	6H	13.73	14.06	14.82	15.17	16.60	9.92	10.26	11.01	11.36	12.79
	8H	13.94	14.24	15.04	15.33	16.78	10.11	10.41	11.21	11.50	12.95
	12H	14.08	14.34	15.18	15.42	16.91	10.23	10.49	11.33	11.58	13.06
12H	4H	13.11	13.48	14.20	14.56	16.00	9.41	9.77	10.49	10.85	12.29
	6H	13.70	14.00	14.80	15.09	16.54	9.97	10.26	11.07	11.36	12.80
	8H	13.92	14.18	15.02	15.27	16.75	10.18	10.44	11.28	11.52	13.01