

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: P920883

Luminaire Tested: DFN2DIP-TR3F0-080D090US935-RLLFLL

Issue Date: 11/21/2024

**Test Information**

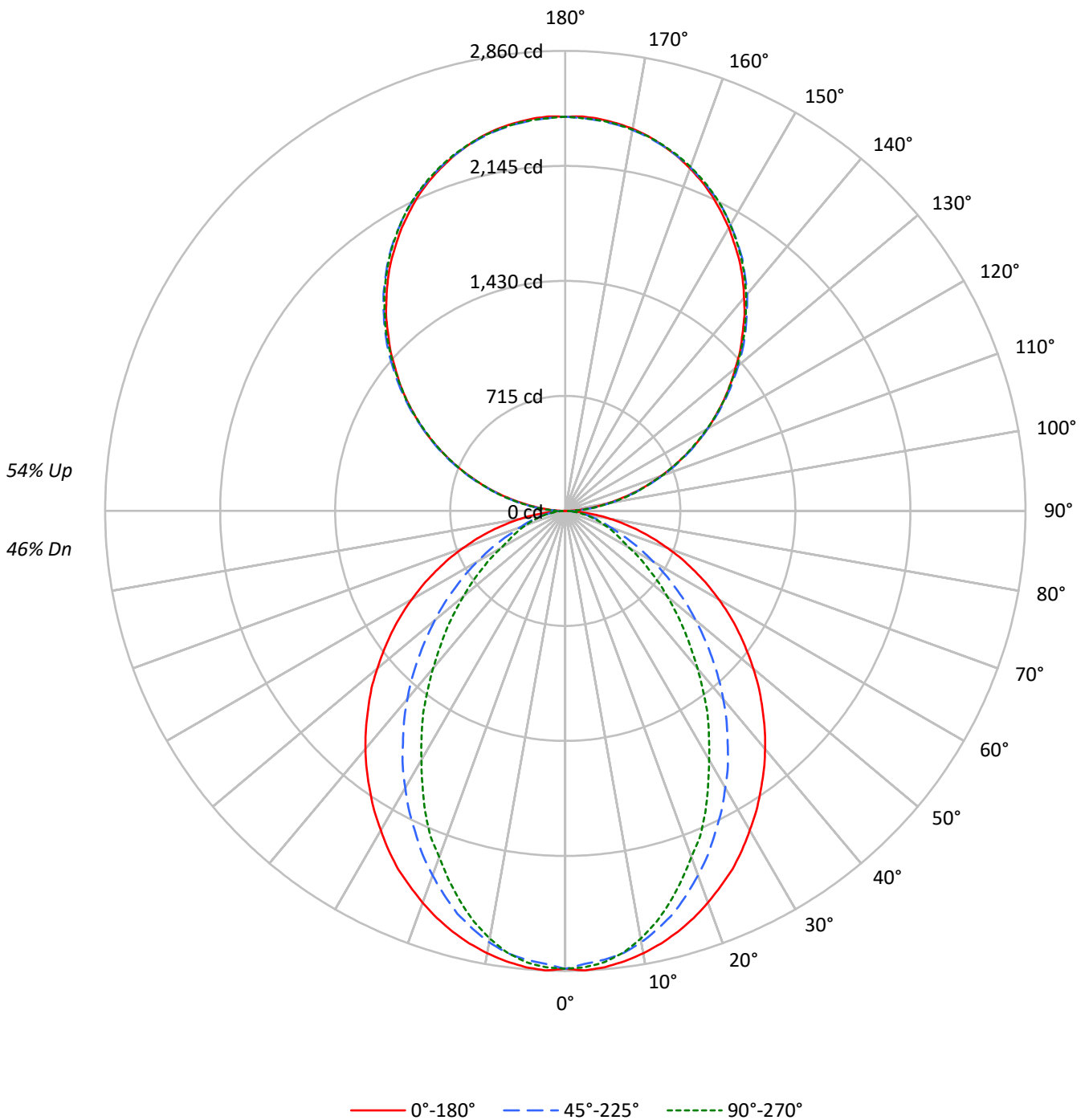
Test Method: LM-79-2019  
Report Number: P920883  
REPORT IS A COMBINATION OF REPORTS P900366 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-080D090US935-RLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12712.6 lumens  
Efficiency: N/A  
Efficacy: 83.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 151.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9968  
Total Harmonic Distortion (THDi): 0.064  
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	81	81	81	66	66	66	53	53	53	46				46
1	97	93	90	86	89	86	83	80	72	70	68	59	57	56	47	46	45	40				40
2	89	82	76	71	82	75	70	66	63	60	57	52	50	47	42	40	39	34				34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	33	29				29
4	75	64	57	51	68	59	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	22				22
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	26	22	20	22	19	17	15				15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	17	15	13				13

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

	0°	45°	90°
0°	3547	3547	3547
5°	3551	3488	3511
10°	3514	3417	3395
15°	3464	3301	3216
20°	3398	3143	2997
25°	3330	2965	2786
30°	3240	2784	2519
35°	3152	2589	2285
40°	3062	2388	2017
45°	2957	2166	1774
50°	2849	1941	1536
55°	2736	1702	1309
60°	2605	1452	1075
65°	2454	1198	965
70°	2271	961	870
75°	2041	841	786
80°	1708	696	674
85°	1162	451	493

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2957 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.8	2.1
10°-20°	732.4	5.8
20°-30°	1028.3	8.1
30°-40°	1120.9	8.8
40°-50°	1030.3	8.1
50°-60°	809.1	6.4
60°-70°	526.6	4.1
70°-80°	271.1	2.1
80°-90°	76.2	0.6
90°-100°	151.6	1.2
100°-110°	481.8	3.8
110°-120°	824.6	6.5
120°-130°	1084.4	8.5
130°-140°	1217.2	9.6
140°-150°	1193.6	9.4
150°-160°	1001.3	7.9
160°-170°	664.0	5.2
170°-180°	232.1	1.8
0°-30°	2027.6	15.9
0°-40°	3148.5	24.8
0°-60°	4987.8	39.2
0°-90°	5861.8	46.1
90°-120°	1458.0	11.5
90°-150°	4953.4	39.0
90°-180°	6851.0	53.9
0°-180°	12712.6	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	27	72	68	70	13
95°	108	128	132	132	128	120
105°	445	451	455	459	459	469
115°	828	839	836	833	828	818
125°	1204	1222	1216	1209	1207	1076
135°	1557	1580	1584	1582	1576	1203
145°	1890	1905	1916	1919	1911	1181
155°	2161	2167	2174	2184	2177	995
165°	2351	2349	2349	2364	2353	663
175°	2446	2440	2436	2451	2438	232
180°	2451	2451	2451	2451	2451	



TEST NUMBER: P920883

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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°	2.2	26.6	72.4	67.9	70.2
92.5°	45.8	62.1	64.3	66.5	66.5
95°	107.9	128.5	132.2	132.2	128.5
97.5°	179.5	198.7	206.9	206.9	206.9
100°	262.3	279.3	285.2	285.2	283.0
102.5°	349.5	362.0	370.1	372.4	370.1
105°	444.8	450.6	455.1	458.8	458.8
107.5°	539.3	548.2	548.2	549.7	539.3
110°	630.9	642.8	642.8	642.8	636.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	730.0	742.5	740.3	734.4	730.0
115°	827.5	839.3	835.6	833.4	827.5
117.5°	924.3	940.6	930.2	924.3	918.3
120°	1021.8	1038.0	1021.8	1021.8	1015.1
122.5°	1110.4	1131.2	1120.8	1114.9	1110.4
125°	1203.6	1222.0	1216.2	1209.4	1207.3
127.5°	1294.4	1317.3	1309.2	1300.4	1294.4
130°	1379.4	1406.0	1402.3	1397.8	1389.7
132.5°	1474.7	1495.4	1496.8	1486.5	1480.7
135°	1556.7	1579.6	1584.1	1581.8	1576.0
137.5°	1648.3	1666.8	1670.5	1669.0	1660.2
140°	1728.9	1747.3	1757.6	1757.6	1749.5
142.5°	1811.6	1830.1	1836.0	1838.2	1830.1
145°	1890.0	1904.7	1916.5	1918.7	1910.6
147.5°	1960.1	1978.6	1987.4	1991.1	1983.1
150°	2032.6	2045.1	2053.2	2059.9	2053.2
152.5°	2096.8	2109.4	2119.7	2127.9	2119.7
155°	2161.1	2167.0	2173.7	2184.0	2177.4
157.5°	2216.5	2220.9	2224.6	2239.4	2229.0
160°	2266.0	2270.5	2272.7	2285.2	2276.3
162.5°	2311.8	2311.8	2314.0	2328.1	2317.7
165°	2351.0	2348.7	2348.7	2363.5	2353.2
167.5°	2386.4	2379.8	2379.8	2394.5	2384.2
170°	2413.0	2407.1	2404.9	2419.7	2407.1
172.5°	2431.5	2425.6	2423.4	2438.2	2425.6
175°	2446.3	2440.3	2435.9	2450.7	2438.2
177.5°	2454.4	2448.5	2444.0	2456.6	2444.0
180°	2450.7	2450.7	2450.7	2450.7	2450.7



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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	11.12	11.92	12.11	12.92	14.25	7.09	7.89	8.09	8.90	10.23
	3H	12.78	13.50	13.79	14.51	15.86	8.28	8.99	9.28	10.00	11.35
	4H	13.38	14.06	14.40	15.08	16.43	8.72	9.40	9.74	10.41	11.77
	6H	13.80	14.42	14.83	15.44	16.81	9.04	9.66	10.07	10.68	12.05
	8H	13.92	14.51	14.95	15.55	16.91	9.12	9.71	10.16	10.75	12.12
	12H	13.98	14.54	15.02	15.57	16.96	9.16	9.72	10.20	10.75	12.14
4H	2H	11.13	11.81	12.16	12.82	14.18	7.68	8.36	8.71	9.37	10.73
	3H	12.95	13.51	13.98	14.55	15.92	9.02	9.58	10.06	10.63	12.00
	4H	13.63	14.14	14.67	15.18	16.57	9.56	10.08	10.60	11.11	12.51
	6H	14.14	14.58	15.19	15.64	17.02	9.98	10.42	11.03	11.48	12.86
	8H	14.30	14.72	15.36	15.77	17.17	10.10	10.51	11.15	11.56	12.97
	12H	14.39	14.76	15.46	15.83	17.24	10.16	10.53	11.23	11.60	13.01
8H	4H	13.59	14.01	14.65	15.06	16.46	9.84	10.25	10.89	11.30	12.70
	6H	14.15	14.49	15.22	15.58	16.98	10.35	10.69	11.42	11.78	13.18
	8H	14.36	14.66	15.44	15.74	17.16	10.53	10.83	11.61	11.91	13.33
	12H	14.49	14.75	15.58	15.83	17.29	10.64	10.91	11.73	11.98	13.44
12H	4H	13.54	13.92	14.61	14.98	16.39	9.84	10.21	10.91	11.28	12.69
	6H	14.12	14.42	15.21	15.50	16.92	10.39	10.69	11.47	11.77	13.19
	8H	14.34	14.60	15.42	15.67	17.13	10.60	10.86	11.68	11.93	13.39