

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: P926474

Luminaire Tested: DFN2DIP-TR4F0-070D040US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

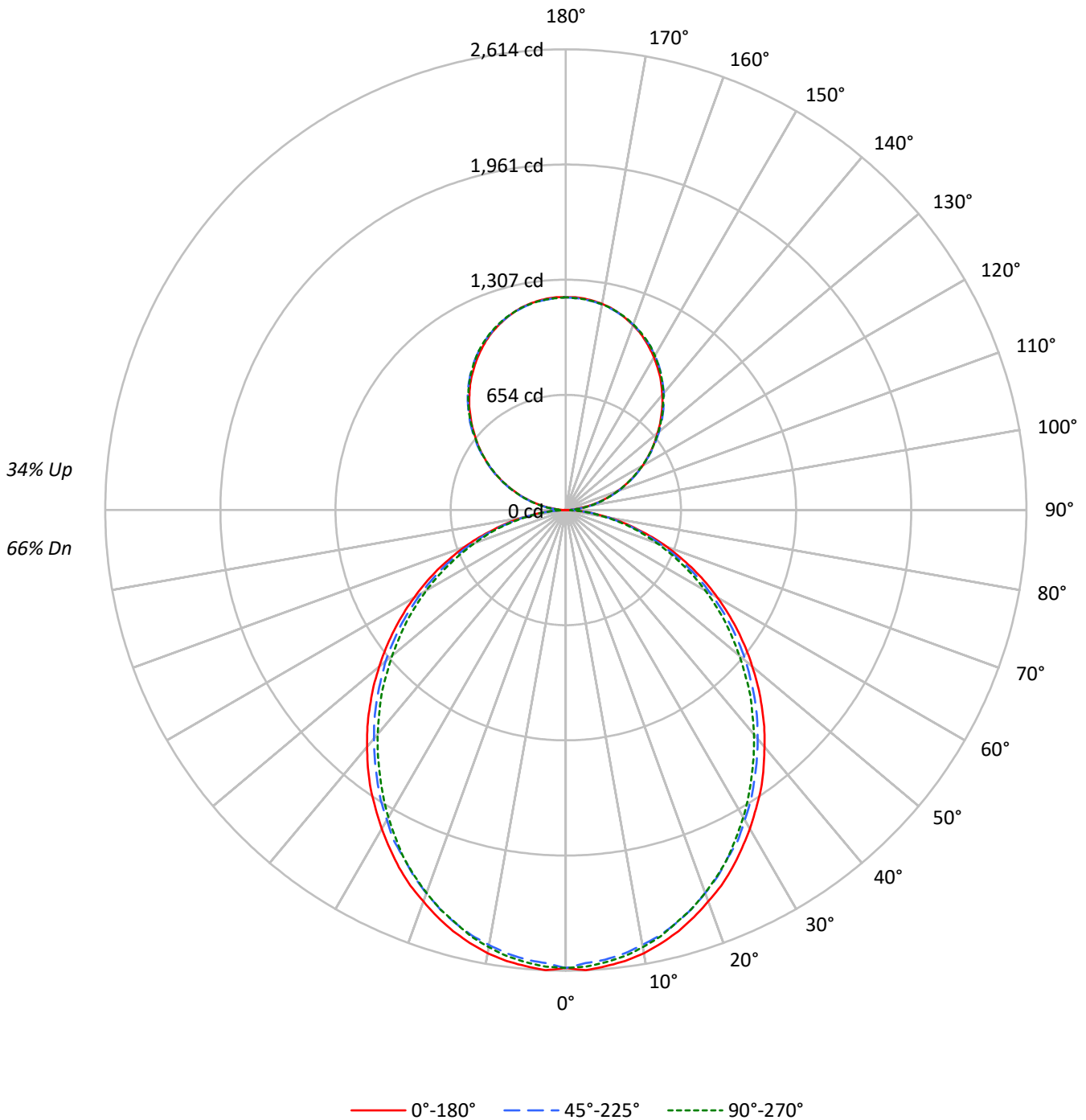
Test Method: LM-79-2019  
Report Number: P926474  
REPORT IS A COMBINATION OF REPORTS P900375 AND P897293  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-070D040US950-FLLFLL  
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9988.4 lumens  
Efficiency: N/A  
Efficacy: 104.2 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: Semi-Direct  
  
Input Watts (W): 95.9  
Input Voltage (V):  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
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





TEST NUMBER: P926474  
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**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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66			
1	101	97	93	89	95	91	88	85	81	78	76	72	70	68	63	61	60	56			
2	92	85	78	73	87	80	74	70	71	67	63	63	60	57	55	53	51	47			
3	84	75	67	61	79	70	64	58	63	57	53	56	51	48	49	46	43	40			
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34			
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	32	30			
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	29	26			
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	25	23			
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21			
9	53	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21	19			
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17			

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

	0°	45°	90°
0°	2064	2064	2064
5°	2068	2036	2049
10°	2051	2008	2021
15°	2021	1975	1978
20°	1980	1929	1934
25°	1940	1874	1882
30°	1889	1823	1817
35°	1841	1763	1748
40°	1781	1702	1682
45°	1722	1641	1615
50°	1658	1577	1537
55°	1590	1502	1465
60°	1514	1414	1383
65°	1430	1323	1286
70°	1324	1212	1182
75°	1177	1079	1086
80°	1000	910	902
85°	724	618	598

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1722 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	244.6	2.4
10°-20°	688.1	6.9
20°-30°	1011.3	10.1
30°-40°	1174.5	11.8
40°-50°	1173.1	11.7
50°-60°	1022.9	10.2
60°-70°	756.1	7.6
70°-80°	427.8	4.3
80°-90°	116.4	1.2
90°-100°	74.7	0.7
100°-110°	237.3	2.4
110°-120°	406.1	4.1
120°-130°	534.0	5.3
130°-140°	599.4	6.0
140°-150°	587.8	5.9
150°-160°	493.1	4.9
160°-170°	327.0	3.3
170°-180°	114.3	1.1
0°-30°	1943.9	19.5
0°-40°	3118.5	31.2
0°-60°	5314.4	53.2
0°-90°	6614.7	66.2
90°-120°	718.0	7.2
90°-150°	2439.3	24.4
90°-180°	3374.0	33.8
0°-180°	9988.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2598	2598	2598	2598	2598	
5°	2598	2589	2561	2581	2576	247
15°	2474	2459	2426	2436	2424	697
25°	2239	2219	2176	2181	2176	1030
35°	1932	1907	1866	1851	1839	1206
45°	1572	1554	1517	1489	1479	1213
55°	1189	1174	1144	1114	1102	1063
65°	802	787	762	740	727	793
75°	420	415	402	387	392	448
85°	102	100	98	90	88	114
90°	1	13	36	34	34	10
95°	53	63	65	65	63	59
105°	219	222	224	226	226	231
115°	408	413	412	410	408	403
125°	593	602	599	596	594	530
135°	767	778	780	779	776	593
145°	931	938	944	945	941	582
155°	1064	1067	1070	1076	1072	490
165°	1158	1157	1157	1164	1159	327
175°	1205	1202	1200	1207	1201	114
180°	1207	1207	1207	1207	1207	



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CATALOG NUMBER: DFN2DIP-TR4F0-070D040US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2598.4	2598.4	2598.4	2598.4	2598.4
2.5°	2613.6	2601.1	2573.5	2598.4	2593.6
5°	2598.4	2588.7	2561.1	2581.0	2576.2
7.5°	2581.0	2566.1	2538.5	2558.7	2553.7
10°	2553.7	2536.1	2506.2	2526.1	2518.7
12.5°	2516.0	2501.2	2471.2	2483.6	2478.6
15°	2473.6	2458.7	2426.1	2436.2	2423.7
17.5°	2421.1	2406.3	2373.6	2386.1	2373.6
20°	2363.5	2348.7	2313.7	2321.2	2311.4
22.5°	2306.3	2283.8	2251.2	2251.2	2246.1
25°	2238.8	2218.8	2176.5	2181.2	2176.5
27.5°	2163.7	2146.2	2113.9	2106.4	2093.9
30°	2089.0	2068.7	2031.4	2024.0	2013.9
32.5°	2008.8	1994.1	1954.0	1938.9	1928.8
35°	1931.5	1906.6	1866.5	1851.4	1838.9
37.5°	1844.0	1821.5	1781.4	1763.9	1751.4
40°	1754.1	1734.0	1693.9	1671.7	1661.6
42.5°	1666.6	1646.5	1606.7	1581.5	1566.7
45°	1571.7	1554.3	1516.6	1489.3	1479.2
47.5°	1479.2	1461.7	1421.7	1394.1	1379.3
50°	1381.7	1369.2	1334.2	1299.3	1286.8
52.5°	1286.8	1269.3	1237.0	1209.4	1191.8
55°	1189.4	1174.4	1144.4	1114.5	1102.0
57.5°	1091.9	1079.5	1046.8	1016.9	1006.9
60°	994.4	984.5	949.6	922.0	914.6
62.5°	899.4	882.0	857.1	832.2	822.1
65°	802.2	787.0	762.2	739.6	727.1
67.5°	702.2	689.6	667.2	649.8	639.7
70°	609.7	599.7	577.1	559.6	549.8
72.5°	514.8	504.8	492.3	474.8	467.4
75°	419.7	414.9	402.1	387.3	392.4
77.5°	334.9	324.7	319.7	312.2	304.9
80°	249.9	247.4	242.3	234.9	229.8
82.5°	169.9	169.9	167.5	157.5	157.5
85°	102.4	100.0	97.6	89.9	87.5
87.5°	45.0	40.1	35.0	27.6	24.9
90°	1.0	13.1	35.7	33.5	34.5
92.5°	22.5	30.5	31.7	32.7	32.7
95°	53.1	63.3	65.2	65.2	63.3
97.5°	88.4	97.9	101.9	101.9	101.9
100°	129.2	137.6	140.4	140.4	139.4
102.5°	172.1	178.3	182.3	183.4	182.3
105°	219.0	221.9	224.1	225.9	225.9
107.5°	265.6	270.0	270.0	270.6	265.6
110°	310.7	316.5	316.5	316.5	313.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	359.5	365.7	364.5	361.7	359.5
115°	407.5	413.4	411.5	410.4	407.5
117.5°	455.2	463.2	458.1	455.2	452.3
120°	503.2	511.2	503.2	503.2	499.9
122.5°	546.8	557.0	552.0	549.0	546.8
125°	592.7	601.8	598.9	595.6	594.5
127.5°	637.5	648.7	644.7	640.3	637.5
130°	679.2	692.4	690.6	688.4	684.4
132.5°	726.2	736.4	737.2	732.0	729.1
135°	766.6	777.9	780.1	778.9	776.1
137.5°	811.8	820.8	822.6	821.9	817.6
140°	851.3	860.5	865.6	865.6	861.6
142.5°	892.2	901.2	904.1	905.3	901.2
145°	930.7	938.0	943.8	944.9	940.9
147.5°	965.3	974.3	978.7	980.5	976.5
150°	1000.9	1007.1	1011.1	1014.4	1011.1
152.5°	1032.6	1038.7	1043.9	1047.9	1043.9
155°	1064.2	1067.1	1070.4	1075.5	1072.2
157.5°	1091.6	1093.7	1095.5	1102.8	1097.7
160°	1115.9	1118.1	1119.1	1125.3	1121.0
162.5°	1138.4	1138.4	1139.6	1146.4	1141.4
165°	1157.8	1156.6	1156.6	1163.9	1158.8
167.5°	1175.2	1171.9	1171.9	1179.2	1174.1
170°	1188.3	1185.3	1184.3	1191.5	1185.3
172.5°	1197.4	1194.5	1193.4	1200.7	1194.5
175°	1204.7	1201.8	1199.6	1206.8	1200.7
177.5°	1208.7	1205.8	1203.6	1209.8	1203.6
180°	1206.8	1206.8	1206.8	1206.8	1206.8



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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	11.16	12.19	11.96	13.02	14.04	10.73	11.76	11.53	12.59	13.60
	3H	12.83	13.76	13.65	14.59	15.64	12.36	13.28	13.18	14.12	15.17
	4H	13.43	14.30	14.26	15.15	16.20	12.96	13.83	13.79	14.67	15.73
	6H	13.84	14.64	14.68	15.49	16.57	13.36	14.17	14.21	15.02	16.09
	8H	13.95	14.71	14.80	15.58	16.66	13.47	14.24	14.33	15.11	16.18
	12H	14.00	14.73	14.86	15.59	16.69	13.52	14.25	14.38	15.11	16.21
4H	2H	11.64	12.52	12.48	13.36	14.42	11.30	12.17	12.14	13.01	14.07
	3H	13.52	14.25	14.37	15.13	16.20	13.13	13.86	13.98	14.74	15.81
	4H	14.24	14.91	15.11	15.78	16.88	13.84	14.50	14.70	15.38	16.48
	6H	14.77	15.34	15.65	16.24	17.35	14.36	14.93	15.24	15.83	16.94
	8H	14.92	15.46	15.80	16.35	17.47	14.51	15.05	15.39	15.94	17.06
	12H	15.00	15.49	15.90	16.40	17.52	14.58	15.07	15.48	15.98	17.10
8H	4H	14.45	14.99	15.34	15.88	17.00	14.09	14.63	14.98	15.52	16.64
	6H	15.09	15.54	16.00	16.47	17.59	14.73	15.17	15.64	16.11	17.23
	8H	15.31	15.71	16.23	16.64	17.77	14.95	15.34	15.87	16.27	17.40
	12H	15.45	15.80	16.38	16.72	17.91	15.07	15.42	15.99	16.34	17.52
12H	4H	14.45	14.93	15.35	15.84	16.97	14.10	14.58	15.00	15.49	16.62
	6H	15.12	15.52	16.04	16.45	17.58	14.77	15.17	15.69	16.09	17.23
	8H	15.37	15.72	16.30	16.64	17.83	15.02	15.36	15.94	16.28	17.47