

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: P926381

Luminaire Tested: DFN2DIP-TR4F0-040D070US950-RLONL

Issue Date: 11/21/2024

**Test Information**

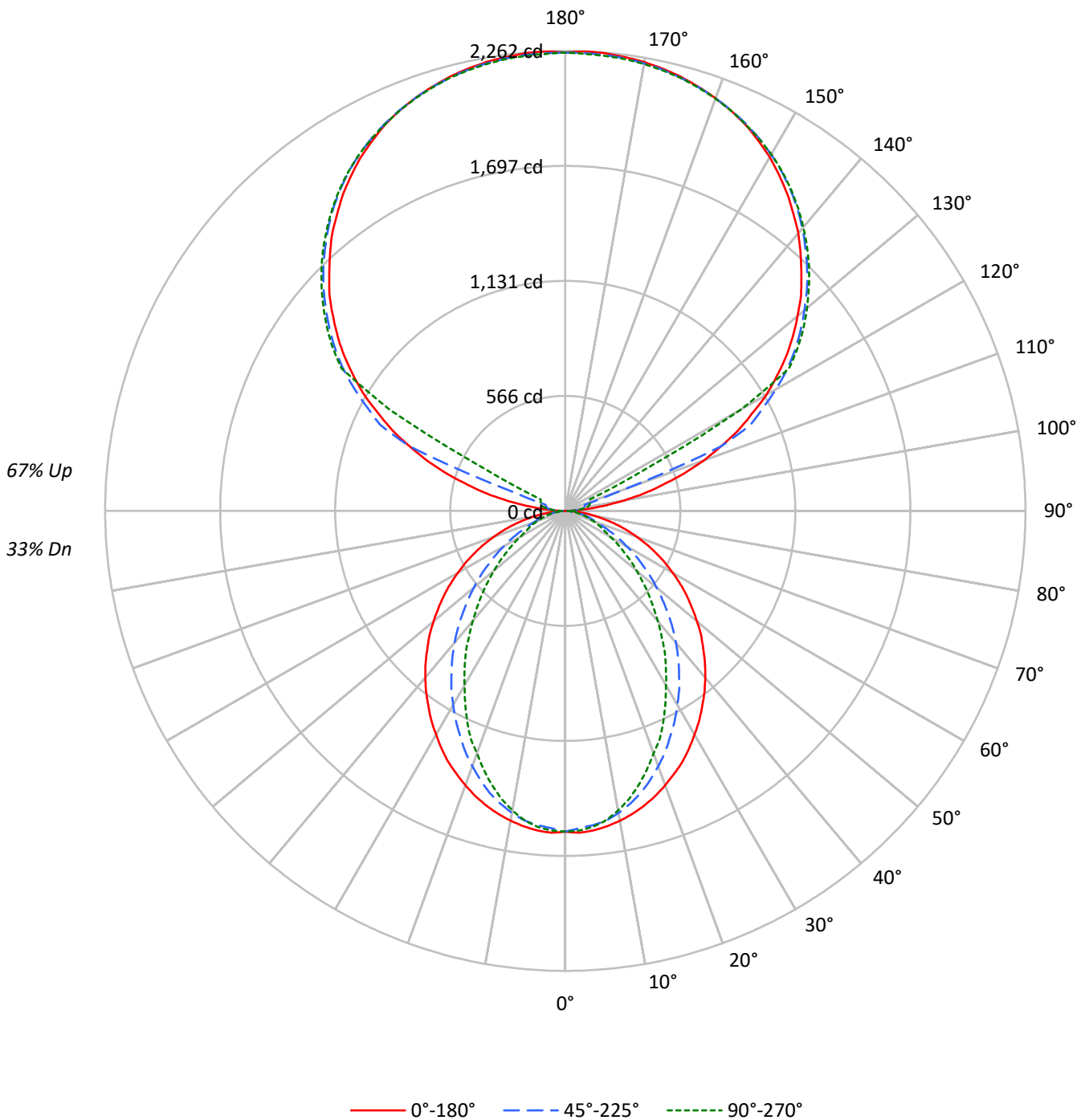
Test Method: LM-79-2019  
Report Number: P926381  
REPORT IS A COMBINATION OF REPORTS P901944 AND P898849  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-040D070US950-RLLONL  
Description: 4 foot, 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: 9854.8 lumens  
Efficiency: N/A  
Efficacy: 117.2 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: Semi-Indirect  
  
Input Watts (W): 84.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40	33				33
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35	28				28
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30	24				24
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26	21				21
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22	18				18
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20	16				16
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17	14				14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16	13				13
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14	12				12
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13	10				10
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12	10				10

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

	0°	45°	90°
0°	1253	1253	1253
5°	1255	1233	1241
10°	1243	1209	1201
15°	1225	1169	1138
20°	1203	1114	1061
25°	1180	1052	987
30°	1149	989	894
35°	1118	921	811
40°	1087	850	717
45°	1051	772	631
50°	1014	693	547
55°	975	609	467
60°	930	521	384
65°	878	431	346
70°	815	348	313
75°	736	306	285
80°	622	257	247
85°	433	172	185

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1198 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	147.8	1.5
10°-20°	405.8	4.1
20°-30°	569.7	5.8
30°-40°	621.0	6.3
40°-50°	570.8	5.8
50°-60°	448.2	4.5
60°-70°	291.8	3.0
70°-80°	150.2	1.5
80°-90°	42.3	0.4
90°-100°	74.3	0.8
100°-110°	277.0	2.8
110°-120°	734.8	7.5
120°-130°	1218.6	12.4
130°-140°	1294.5	13.1
140°-150°	1203.1	12.2
150°-160°	967.2	9.8
160°-170°	623.3	6.3
170°-180°	214.5	2.2
0°-30°	1123.3	11.4
0°-40°	1744.3	17.7
0°-60°	2763.3	28.0
0°-90°	3247.6	33.0
90°-120°	1086.1	11.0
90°-150°	4802.2	48.7
90°-180°	6607.0	67.0
0°-180°	9854.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1570	1551	1564	1560	150
15°	1500	1484	1436	1409	1395	423
25°	1362	1316	1222	1163	1142	626
35°	1173	1100	975	885	853	734
45°	959	864	714	612	578	741
55°	729	618	464	378	351	652
65°	492	377	248	200	196	488
75°	262	163	114	104	103	278
85°	61	31	27	27	27	70
90°	2	20	32	41	44	9
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1577.2	1577.2	1577.2	1577.2	1577.2
2.5°	1584.3	1577.2	1561.4	1575.8	1572.9
5°	1577.2	1570.0	1551.4	1564.3	1560.1
7.5°	1564.3	1555.8	1535.8	1541.4	1534.3
10°	1547.2	1537.2	1508.7	1504.3	1495.9
12.5°	1525.8	1512.9	1474.3	1465.8	1450.1
15°	1500.1	1484.3	1435.9	1408.8	1394.6
17.5°	1470.1	1447.2	1387.2	1355.9	1333.0
20°	1435.9	1407.2	1335.9	1300.3	1268.8
22.5°	1398.8	1365.9	1283.0	1234.6	1213.3
25°	1361.6	1315.9	1221.7	1163.3	1141.7
27.5°	1317.5	1268.8	1164.6	1097.6	1064.7
30°	1270.3	1216.0	1101.8	1029.1	990.5
32.5°	1224.6	1158.9	1042.0	956.3	920.5
35°	1173.3	1100.4	974.9	884.9	853.4
37.5°	1123.3	1044.7	912.0	813.5	777.9
40°	1070.5	984.9	846.4	745.1	708.0
42.5°	1016.2	924.9	780.8	675.1	639.5
45°	959.2	863.5	713.7	612.3	578.0
47.5°	905.0	803.6	649.5	548.1	516.7
50°	845.0	743.6	586.6	488.1	458.2
52.5°	786.4	679.3	526.7	432.4	405.4
55°	729.3	618.0	463.8	378.3	351.2
57.5°	670.9	556.7	408.2	328.3	305.5
60°	610.8	496.7	349.6	276.9	254.1
62.5°	552.5	438.3	299.7	231.2	219.9
65°	492.5	376.7	248.3	199.9	195.5
67.5°	435.4	319.7	199.9	175.5	171.2
70°	375.4	264.1	165.5	151.3	145.5
72.5°	318.3	212.6	138.4	127.1	124.2
75°	262.5	162.7	114.2	104.2	102.8
77.5°	207.0	115.5	90.0	84.2	81.3
80°	155.5	82.8	68.4	62.9	62.9
82.5°	108.5	55.7	47.1	44.2	44.2
85°	61.3	31.4	27.1	27.1	27.1
87.5°	22.9	11.4	11.4	10.0	10.0
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7



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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	6.08	6.79	7.18	7.88	9.38	2.06	2.77	3.15	3.86	5.35
	3H	7.75	8.39	8.86	9.48	11.00	3.24	3.87	4.34	4.97	6.48
	4H	8.35	8.95	9.47	10.05	11.58	3.68	4.28	4.80	5.38	6.90
	6H	8.77	9.32	9.89	10.42	11.96	4.00	4.55	5.12	5.65	7.19
	8H	8.89	9.42	10.02	10.54	12.06	4.09	4.61	5.21	5.73	7.25
	12H	8.95	9.45	10.08	10.56	12.11	4.13	4.62	5.26	5.74	7.28
4H	2H	6.09	6.69	7.21	7.79	9.31	2.64	3.24	3.76	4.34	5.86
	3H	7.91	8.40	9.03	9.53	11.06	3.98	4.48	5.11	5.60	7.14
	4H	8.59	9.05	9.72	10.17	11.72	4.52	4.98	5.65	6.10	7.65
	6H	9.10	9.49	10.24	10.63	12.18	4.94	5.33	6.07	6.47	8.01
	8H	9.27	9.64	10.41	10.77	12.33	5.06	5.43	6.20	6.56	8.12
	12H	9.36	9.69	10.52	10.84	12.40	5.12	5.45	6.28	6.60	8.16
8H	4H	8.55	8.92	9.69	10.05	11.61	4.79	5.16	5.93	6.29	7.85
	6H	9.11	9.41	10.27	10.59	12.15	5.31	5.61	6.47	6.78	8.34
	8H	9.33	9.59	10.49	10.74	12.32	5.50	5.76	6.66	6.92	8.49
	12H	9.46	9.69	10.63	10.84	12.46	5.61	5.85	6.78	6.99	8.61
12H	4H	8.50	8.83	9.65	9.97	11.54	4.79	5.12	5.95	6.27	7.83
	6H	9.09	9.35	10.25	10.50	12.08	5.36	5.62	6.52	6.77	8.35
	8H	9.30	9.53	10.47	10.68	12.30	5.56	5.79	6.73	6.94	8.56