

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: P910084

Luminaire Tested: DFN2DIP-TR4F0-060D070US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910084
REPORT IS A COMBINATION OF REPORTS P900428 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D070US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

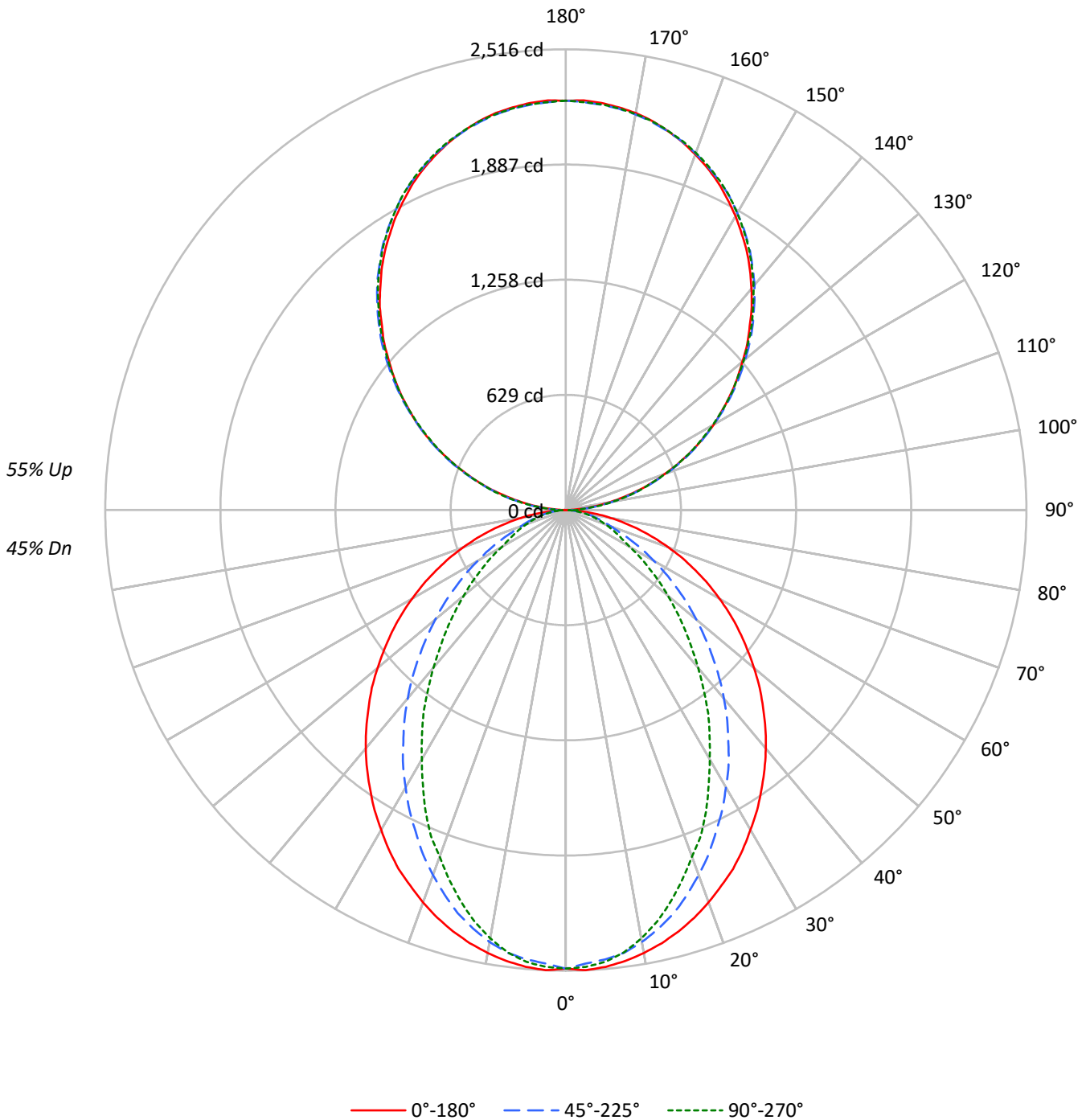
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11406.4 lumens
Efficiency: N/A
Efficacy: 108.1 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): 105.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910084
CATALOG NUMBER: DFN2DIP-TR4F0-060D070US840-RLLFLL

Luminous Intensity Polar Plot





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CATALOG NUMBER: DFN2DIP-TR4F0-060D070US840-RLLFLL

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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45	45	45	45
1	97	93	89	86	89	85	82	79	71	69	67	58	57	55	46	45	44	39	39	39	39
2	89	82	76	71	81	75	70	66	63	59	56	52	49	47	41	40	38	33	33	33	33
3	81	72	65	60	74	67	60	56	56	51	48	46	43	40	37	35	33	29	29	29	29
4	75	64	57	51	68	59	53	47	50	45	41	41	38	35	33	31	29	25	25	25	25
5	69	57	50	44	63	53	46	41	45	40	36	37	33	30	30	28	25	22	22	22	22
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	43	36	32	37	32	28	31	27	24	25	22	20	18	18	18	18
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	19	22	19	17	14	14	14	14
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1989	1989	1989
5°	1993	1958	1970
10°	1973	1919	1906
15°	1946	1856	1807
20°	1910	1769	1685
25°	1873	1671	1568
30°	1824	1570	1419
35°	1775	1462	1288
40°	1726	1350	1138
45°	1669	1226	1002
50°	1610	1101	869
55°	1548	967	741
60°	1477	827	610
65°	1394	685	549
70°	1294	552	497
75°	1170	487	452
80°	988	408	392
85°	689	272	294

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1742 cd/sqm



TEST NUMBER: P910084

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US840-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	2.1
10°-20°	644.3	5.6
20°-30°	904.6	7.9
30°-40°	986.1	8.6
40°-50°	906.3	7.9
50°-60°	711.7	6.2
60°-70°	463.3	4.1
70°-80°	238.5	2.1
80°-90°	67.2	0.6
90°-100°	138.3	1.2
100°-110°	439.6	3.9
110°-120°	752.2	6.6
120°-130°	989.3	8.7
130°-140°	1110.5	9.7
140°-150°	1088.9	9.5
150°-160°	913.5	8.0
160°-170°	605.8	5.3
170°-180°	211.7	1.9
0°-30°	1783.6	15.6
0°-40°	2769.6	24.3
0°-60°	4387.7	38.5
0°-90°	5156.7	45.2
90°-120°	1330.1	11.7
90°-150°	4518.8	39.6
90°-180°	6250.0	54.8
0°-180°	11406.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2090	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	2	24	66	62	64	11
95°	98	117	121	121	117	109
105°	406	411	415	419	419	428
115°	755	766	762	760	755	747
125°	1098	1115	1109	1103	1101	981
135°	1420	1441	1445	1443	1438	1098
145°	1724	1738	1748	1750	1743	1077
155°	1972	1977	1983	1992	1986	907
165°	2145	2143	2143	2156	2147	605
175°	2232	2226	2222	2236	2224	212
180°	2236	2236	2236	2236	2236	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2504.3	2504.3	2504.3	2504.3	2504.3
2.5°	2515.6	2504.3	2479.2	2502.0	2497.5
5°	2504.3	2493.0	2463.4	2483.9	2477.1
7.5°	2483.9	2470.3	2438.6	2447.5	2436.2
10°	2456.6	2440.7	2395.6	2388.6	2375.1
12.5°	2422.8	2402.3	2341.0	2327.5	2302.5
15°	2381.9	2356.8	2279.9	2236.9	2214.2
17.5°	2334.3	2297.9	2202.7	2152.9	2116.7
20°	2279.9	2234.4	2121.2	2064.7	2014.7
22.5°	2221.0	2168.8	2037.3	1960.4	1926.4
25°	2162.1	2089.5	1940.0	1847.1	1813.0
27.5°	2091.9	2014.7	1849.3	1742.7	1690.6
30°	2017.1	1930.8	1749.5	1634.1	1572.8
32.5°	1944.5	1840.2	1654.6	1518.4	1461.7
35°	1863.0	1747.4	1548.0	1405.1	1355.1
37.5°	1783.6	1658.8	1448.2	1291.7	1235.2
40°	1699.7	1563.9	1343.8	1183.0	1124.1
42.5°	1613.7	1468.6	1239.7	1071.9	1015.4
45°	1523.0	1371.0	1133.3	972.1	917.8
47.5°	1436.9	1276.1	1031.3	870.2	820.4
50°	1341.7	1180.8	931.5	775.0	727.6
52.5°	1248.6	1078.6	836.3	686.7	643.7
55°	1158.0	981.3	736.5	600.7	557.5
57.5°	1065.2	883.8	648.2	521.3	484.9
60°	970.0	788.7	555.2	439.8	403.4
62.5°	877.2	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.4	317.4	310.4
67.5°	691.3	507.6	317.4	278.7	272.0
70°	596.0	419.3	262.8	240.2	231.1
72.5°	505.4	337.6	219.7	201.8	197.1
75°	417.0	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.4	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
90°	2.0	24.2	66.0	62.0	64.0
92.5°	41.8	56.7	58.7	60.7	60.7
95°	98.4	117.2	120.7	120.7	117.2
97.5°	163.8	181.3	188.7	188.7	188.7
100°	239.2	254.8	260.1	260.1	258.1
102.5°	318.8	330.2	337.7	339.7	337.7
105°	405.8	411.1	415.2	418.6	418.6
107.5°	492.0	500.1	500.1	501.5	492.0
110°	575.6	586.4	586.4	586.4	581.0



TEST NUMBER: P910084

CATALOG NUMBER: DFN2DIP-TR4F0-060D070US840-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	665.9	677.4	675.4	669.9	665.9
115°	754.9	765.7	762.3	760.3	754.9
117.5°	843.1	858.0	848.6	843.1	837.8
120°	932.1	947.0	932.1	932.1	926.0
122.5°	1013.0	1031.9	1022.5	1017.0	1013.0
125°	1097.9	1114.8	1109.4	1103.4	1101.4
127.5°	1180.8	1201.7	1194.4	1186.3	1180.8
130°	1258.4	1282.6	1279.3	1275.3	1267.8
132.5°	1345.3	1364.2	1365.5	1356.1	1350.7
135°	1420.2	1441.0	1445.1	1443.0	1437.6
137.5°	1503.7	1520.6	1523.9	1522.6	1514.5
140°	1577.2	1594.1	1603.5	1603.5	1596.1
142.5°	1652.6	1669.5	1674.9	1676.9	1669.5
145°	1724.1	1737.6	1748.4	1750.4	1743.0
147.5°	1788.2	1805.0	1813.1	1816.4	1809.1
150°	1854.2	1865.6	1873.1	1879.2	1873.1
152.5°	1912.8	1924.3	1933.7	1941.2	1933.7
155°	1971.5	1976.8	1983.0	1992.4	1986.3
157.5°	2022.1	2026.1	2029.4	2043.0	2033.5
160°	2067.2	2071.2	2073.3	2084.7	2076.6
162.5°	2109.0	2109.0	2111.0	2123.7	2114.4
165°	2144.7	2142.6	2142.6	2156.2	2146.7
167.5°	2177.1	2171.0	2171.0	2184.4	2175.0
170°	2201.3	2196.0	2193.9	2207.4	2196.0
172.5°	2218.2	2212.7	2210.7	2224.2	2212.7
175°	2231.6	2226.2	2222.2	2235.6	2224.2
177.5°	2239.1	2233.6	2229.6	2241.1	2229.6
180°	2235.6	2235.6	2235.6	2235.6	2235.6



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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	9.06	9.86	10.07	10.87	12.21	5.04	5.83	6.04	6.84	8.18
	3H	10.74	11.45	11.75	12.47	13.83	6.23	6.93	7.24	7.95	9.31
	4H	11.35	12.02	12.37	13.04	14.41	6.67	7.35	7.70	8.37	9.74
	6H	11.77	12.38	12.80	13.41	14.79	7.00	7.61	8.03	8.64	10.02
	8H	11.89	12.48	12.93	13.52	14.90	7.09	7.67	8.13	8.71	10.09
	12H	11.95	12.51	13.00	13.54	14.95	7.13	7.69	8.17	8.72	10.12
4H	2H	9.08	9.75	10.11	10.77	12.14	5.63	6.30	6.66	7.32	8.69
	3H	10.90	11.46	11.95	12.51	13.89	6.98	7.53	8.02	8.58	9.97
	4H	11.59	12.10	12.64	13.15	14.55	7.52	8.03	8.57	9.08	10.48
	6H	12.11	12.55	13.17	13.61	15.01	7.94	8.38	9.00	9.45	10.85
	8H	12.28	12.69	13.34	13.75	15.16	8.07	8.48	9.13	9.54	10.95
	12H	12.38	12.74	13.45	13.82	15.24	8.14	8.50	9.21	9.58	11.00
8H	4H	11.56	11.97	12.62	13.03	14.44	7.80	8.21	8.86	9.27	10.68
	6H	12.12	12.46	13.21	13.56	14.97	8.32	8.66	9.40	9.76	11.17
	8H	12.34	12.64	13.43	13.72	15.15	8.51	8.81	9.60	9.89	11.32
	12H	12.48	12.74	13.57	13.82	15.29	8.63	8.89	9.72	9.97	11.44
12H	4H	11.51	11.88	12.59	12.95	14.37	7.80	8.17	8.88	9.25	10.67
	6H	12.10	12.40	13.19	13.48	14.91	8.37	8.67	9.46	9.75	11.18
	8H	12.32	12.58	13.41	13.66	15.13	8.58	8.84	9.67	9.92	11.39