

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: P910228

Luminaire Tested: DFN2DIP-TR4F0-100D070US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910228
REPORT IS A COMBINATION OF REPORTS P900436 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D070US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

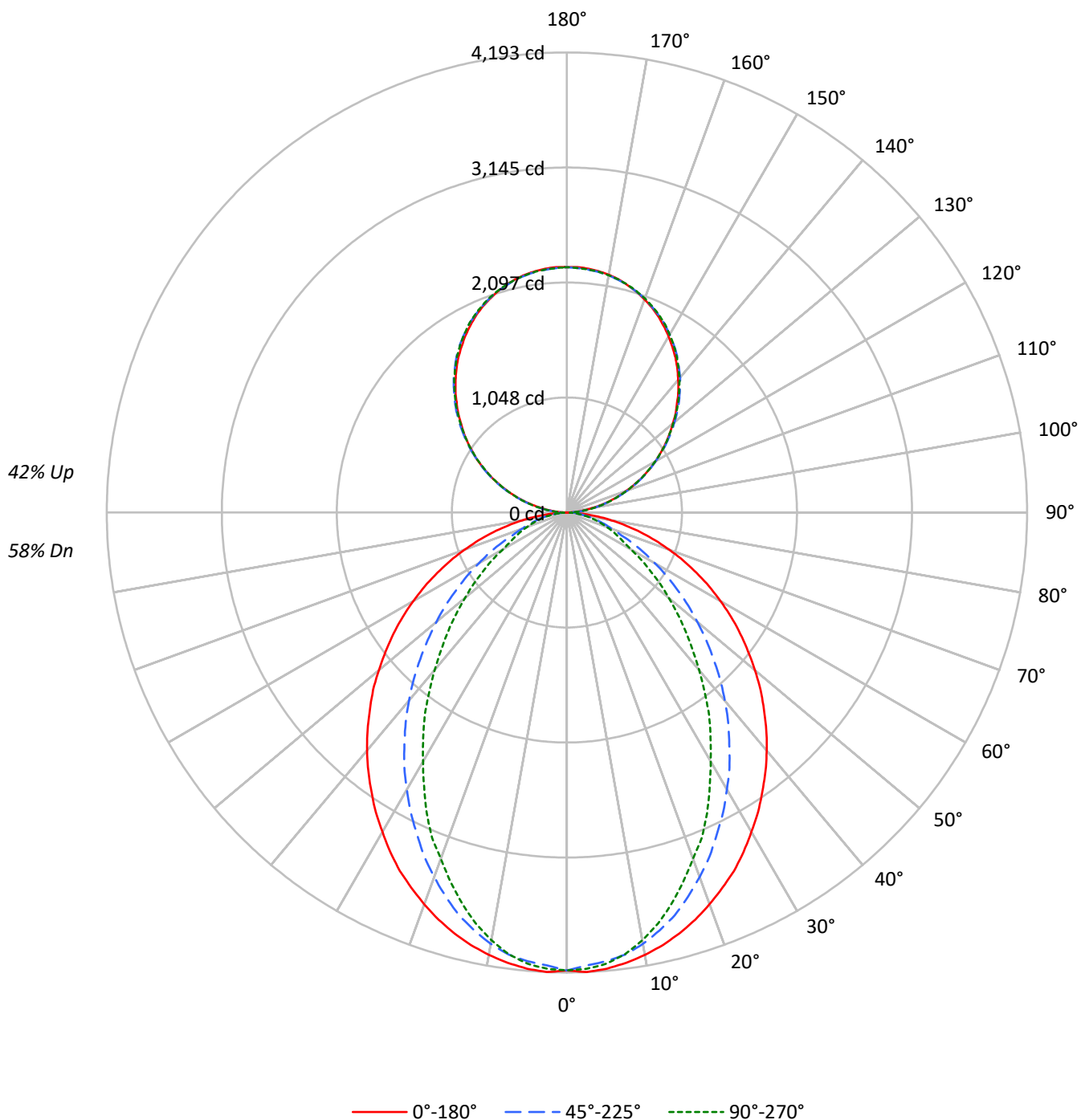
Lumens per Lamp: N/A
Luminaire Lumens: 14840.0 lumens
Efficiency: N/A
Efficacy: 96.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 153.2
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63
1	100	96	92	89	93	90	86	83	78	75	73	67	65	64	57	56	55
2	92	84	79	74	85	79	74	69	69	65	62	59	57	54	51	49	47
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	43	41
4	77	67	59	53	72	62	56	50	55	49	45	48	44	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	35	31	34	31	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	28	25
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	23
9	53	41	33	28	49	39	32	27	34	29	25	30	26	23	27	23	20
10	49	38	30	26	46	36	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3316	3316	3316
5°	3321	3263	3284
10°	3288	3199	3177
15°	3243	3093	3012
20°	3183	2947	2809
25°	3122	2784	2613
30°	3040	2617	2365
35°	2959	2436	2147
40°	2877	2250	1896
45°	2781	2043	1670
50°	2683	1835	1448
55°	2580	1612	1236
60°	2461	1378	1017
65°	2324	1141	915
70°	2158	920	828
75°	1949	811	753
80°	1646	680	653
85°	1148	454	490

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2781 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.2	2.6
10°-20°	1073.8	7.2
20°-30°	1507.6	10.2
30°-40°	1643.4	11.1
40°-50°	1510.5	10.2
50°-60°	1186.3	8.0
60°-70°	772.1	5.2
70°-80°	397.5	2.7
80°-90°	107.8	0.7
90°-100°	138.3	0.9
100°-110°	439.6	3.0
110°-120°	752.2	5.1
120°-130°	989.3	6.7
130°-140°	1110.5	7.5
140°-150°	1088.9	7.3
150°-160°	913.5	6.2
160°-170°	605.8	4.1
170°-180°	211.7	1.4
0°-30°	2972.6	20.0
0°-40°	4616.1	31.1
0°-60°	7312.8	49.3
0°-90°	8590.2	57.9
90°-120°	1330.1	9.0
90°-150°	4518.8	30.5
90°-180°	6250.0	42.1
0°-180°	14840.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4106	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3604	3482	3233	3078	3022	1657
35°	3105	2912	2580	2342	2259	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1636	1228	1001	929	1725
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	2	24	66	62	64	15
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°	4173.8	4173.8	4173.8	4173.8	4173.8
2.5°	4192.6	4173.8	4132.1	4170.1	4162.6
5°	4173.8	4154.9	4105.6	4139.7	4128.4
7.5°	4139.7	4117.2	4064.3	4079.1	4060.4
10°	4094.4	4067.9	3992.6	3981.0	3958.6
12.5°	4037.9	4003.8	3901.6	3879.2	3837.5
15°	3969.8	3928.1	3799.8	3728.1	3690.5
17.5°	3890.4	3829.9	3671.3	3588.3	3527.8
20°	3799.8	3724.1	3535.3	3441.2	3357.8
22.5°	3701.7	3614.7	3395.5	3267.3	3210.8
25°	3603.5	3482.5	3233.2	3078.5	3021.6
27.5°	3486.5	3357.8	3082.1	2904.6	2817.6
30°	3361.8	3217.9	2915.8	2723.5	2621.3
32.5°	3240.9	3066.9	2757.5	2530.7	2436.1
35°	3104.9	2912.3	2580.0	2342.0	2258.6
37.5°	2972.7	2764.7	2413.7	2152.8	2058.6
40°	2832.9	2606.5	2239.8	1971.7	1873.5
42.5°	2689.4	2447.7	2066.3	1786.6	1692.3
45°	2538.3	2285.0	1888.8	1620.2	1529.6
47.5°	2394.9	2126.8	1718.8	1450.3	1367.4
50°	2236.1	1968.0	1552.5	1291.6	1212.6
52.5°	2081.0	1797.8	1393.8	1144.5	1072.8
55°	1930.0	1635.5	1227.5	1001.1	929.3
57.5°	1775.3	1473.1	1080.5	868.8	808.3
60°	1616.6	1314.4	925.3	733.0	672.5
62.5°	1461.9	1159.7	793.0	612.0	581.9
65°	1303.2	997.0	657.2	529.0	517.4
67.5°	1152.2	846.0	529.0	464.4	453.2
70°	993.4	698.9	438.0	400.3	385.2
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.9	430.4	302.2	275.7	272.1
77.5°	547.9	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
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



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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	12.01	12.91	12.91	13.82	14.98	7.98	8.88	8.88	9.79	10.95
	3H	13.69	14.50	14.60	15.42	16.60	9.18	9.98	10.09	10.90	12.08
	4H	14.31	15.06	15.23	15.99	17.18	9.63	10.39	10.56	11.32	12.51
	6H	14.73	15.43	15.66	16.36	17.56	9.96	10.66	10.89	11.59	12.79
	8H	14.86	15.52	15.80	16.47	17.67	10.05	10.72	10.99	11.66	12.87
	12H	14.92	15.56	15.87	16.50	17.72	10.10	10.73	11.04	11.67	12.90
4H	2H	12.04	12.80	12.96	13.72	14.91	8.59	9.35	9.52	10.27	11.46
	3H	13.87	14.50	14.81	15.46	16.66	9.95	10.58	10.88	11.53	12.74
	4H	14.57	15.14	15.51	16.09	17.32	10.50	11.07	11.44	12.02	13.25
	6H	15.09	15.58	16.05	16.55	17.79	10.92	11.42	11.88	12.39	13.62
	8H	15.26	15.73	16.22	16.69	17.94	11.05	11.51	12.01	12.48	13.73
	12H	15.36	15.78	16.34	16.76	18.01	11.12	11.54	12.10	12.52	13.77
8H	4H	14.54	15.00	15.50	15.97	17.21	10.78	11.24	11.74	12.21	13.46
	6H	15.11	15.49	16.10	16.50	17.74	11.30	11.69	12.29	12.69	13.94
	8H	15.33	15.66	16.32	16.66	17.92	11.50	11.83	12.49	12.83	14.09
	12H	15.47	15.76	16.47	16.75	18.06	11.62	11.92	12.62	12.91	14.21
12H	4H	14.50	14.91	15.48	15.90	17.15	10.79	11.21	11.77	12.19	13.44
	6H	15.09	15.42	16.08	16.42	17.68	11.35	11.69	12.35	12.69	13.95
	8H	15.31	15.61	16.31	16.60	17.90	11.57	11.86	12.57	12.85	14.16