

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: P918485

Luminaire Tested: DFN2DIP-TR4F0-120D070US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918485
REPORT IS A COMBINATION OF REPORTS P901960 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D070US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

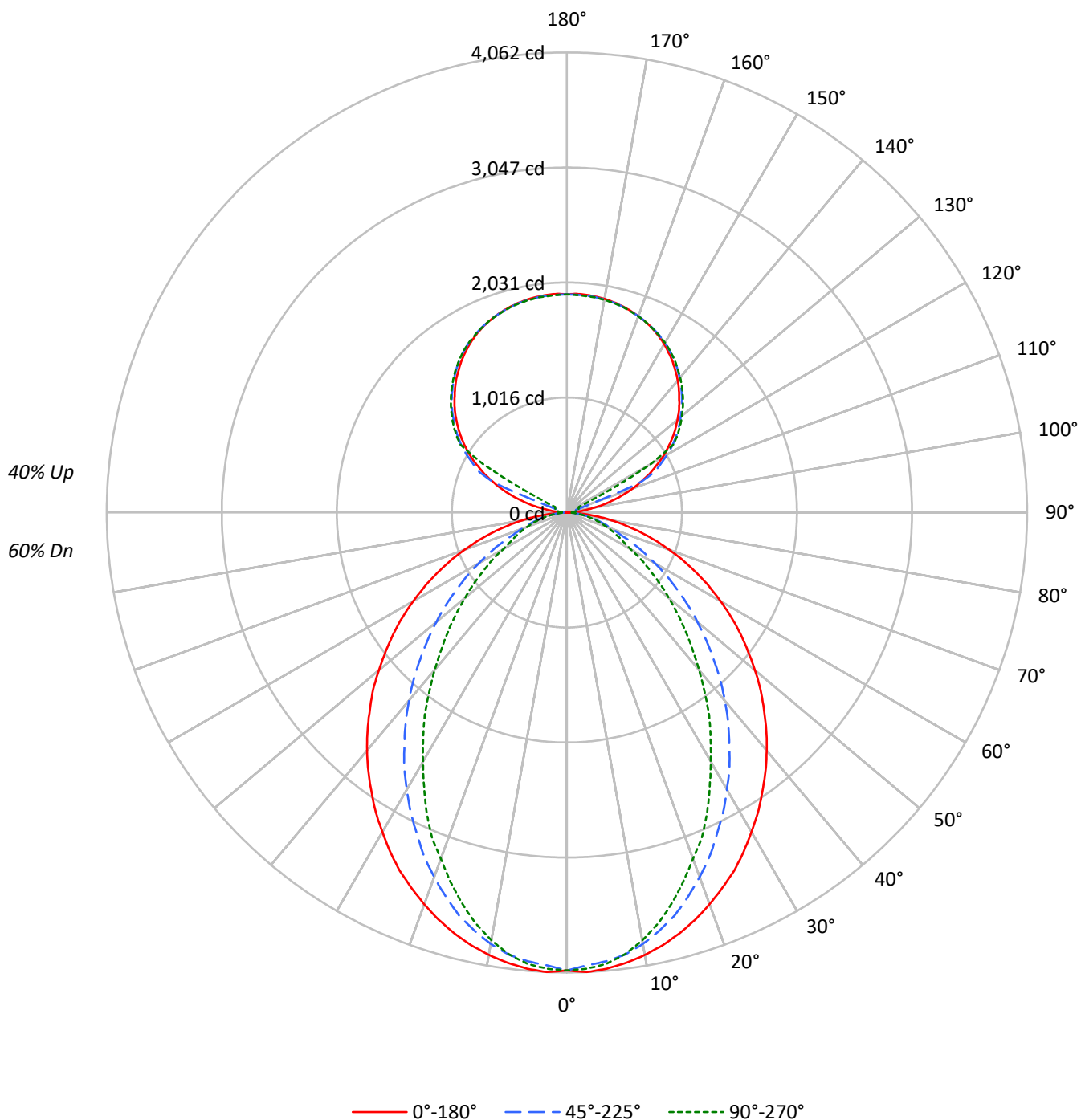
Lumens per Lamp: N/A
Luminaire Lumens: 13966.1 lumens
Efficiency: N/A
Efficacy: 78.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 177.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918485

CATALOG NUMBER: DFN2DIP-TR4F0-120D070US930-RLLONL

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	89	89	89	76	76	76	65	65	65
1	101	96	93	89	94	90	87	84	79	76	74	68	66	65	58	57	56
2	92	85	79	74	86	80	74	70	70	66	62	60	58	55	52	50	48
3	84	75	68	62	79	71	64	59	62	57	53	54	50	47	47	44	42
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	67	56	49	44	50	44	40	44	39	36	38	35	32
6	66	54	46	40	62	51	44	39	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	26
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3212	3212	3212
5°	3218	3161	3182
10°	3186	3099	3078
15°	3142	2997	2918
20°	3084	2856	2721
25°	3025	2697	2531
30°	2945	2535	2291
35°	2867	2360	2080
40°	2787	2180	1837
45°	2695	1980	1618
50°	2599	1777	1403
55°	2500	1561	1197
60°	2384	1335	985
65°	2251	1106	887
70°	2090	891	802
75°	1888	786	730
80°	1596	659	632
85°	1112	440	475

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2695 cd/sqm

TEST NUMBER: P918485

CATALOG NUMBER: DFN2DIP-TR4F0-120D070US930-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.0	2.7
10°-20°	1040.3	7.4
20°-30°	1460.6	10.5
30°-40°	1592.1	11.4
40°-50°	1463.4	10.5
50°-60°	1149.2	8.2
60°-70°	748.0	5.4
70°-80°	385.1	2.8
80°-90°	101.7	0.7
90°-100°	63.5	0.5
100°-110°	236.8	1.7
110°-120°	627.9	4.5
120°-130°	1041.5	7.5
130°-140°	1106.3	7.9
140°-150°	1028.1	7.4
150°-160°	826.6	5.9
160°-170°	532.6	3.8
170°-180°	183.3	1.3
0°-30°	2879.9	20.6
0°-40°	4472.0	32.0
0°-60°	7084.6	50.7
0°-90°	8319.4	59.6
90°-120°	928.2	6.6
90°-150°	4104.1	29.4
90°-180°	5647.0	40.4
0°-180°	13966.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4044	4044	4044	4044	4044	
5°	4044	4025	3978	4010	4000	383
15°	3846	3806	3681	3612	3575	1084
25°	3491	3374	3132	2982	2927	1606
35°	3008	2821	2500	2269	2188	1883
45°	2459	2214	1830	1570	1482	1899
55°	1870	1584	1189	970	900	1671
65°	1263	966	637	512	501	1252
75°	673	417	293	267	264	712
85°	157	80	70	70	70	181
90°	1	17	28	35	38	13
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

TEST NUMBER: P918485

CATALOG NUMBER: DFN2DIP-TR4F0-120D070US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4043.6	4043.6	4043.6	4043.6	4043.6
2.5°	4061.8	4043.6	4003.2	4040.0	4032.6
5°	4043.6	4025.3	3977.5	4010.5	3999.7
7.5°	4010.5	3988.8	3937.6	3951.9	3933.7
10°	3966.7	3941.1	3868.0	3856.8	3835.1
12.5°	3911.9	3878.9	3779.9	3758.2	3717.8
15°	3845.9	3805.6	3681.3	3611.8	3575.3
17.5°	3769.0	3710.4	3556.7	3476.4	3417.7
20°	3681.3	3607.9	3425.1	3333.8	3253.0
22.5°	3586.2	3502.0	3289.6	3165.3	3110.6
25°	3491.1	3373.8	3132.3	2982.4	2927.3
27.5°	3377.7	3253.0	2985.9	2814.0	2729.7
30°	3257.0	3117.6	2824.8	2638.5	2539.5
32.5°	3139.7	2971.2	2671.5	2451.8	2360.1
35°	3008.1	2821.3	2499.5	2268.9	2188.1
37.5°	2880.0	2678.5	2338.4	2085.6	1994.4
40°	2744.5	2525.1	2169.9	1910.2	1815.0
42.5°	2605.4	2371.4	2001.8	1730.8	1639.6
45°	2459.1	2213.8	1829.8	1569.7	1481.9
47.5°	2320.1	2060.4	1665.2	1405.1	1324.7
50°	2166.4	1906.7	1504.1	1251.3	1174.8
52.5°	2016.2	1741.6	1350.3	1108.8	1039.3
55°	1869.8	1584.5	1189.2	969.8	900.3
57.5°	1719.9	1427.2	1046.7	841.7	783.1
60°	1566.2	1273.4	896.4	710.1	651.5
62.5°	1416.3	1123.6	768.3	592.9	563.7
65°	1262.6	966.0	636.7	512.5	501.2
67.5°	1116.2	819.5	512.5	450.0	439.1
70°	962.5	677.1	424.4	387.8	373.1
72.5°	816.1	545.1	354.8	325.7	318.4
75°	673.2	416.9	292.8	267.1	263.6
77.5°	530.8	296.2	230.6	215.9	208.5
80°	398.8	212.4	175.5	161.1	161.1
82.5°	278.0	142.8	120.7	113.3	113.3
85°	157.3	80.4	69.5	69.5	69.5
87.5°	58.6	29.1	29.1	25.6	25.6
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1

TEST NUMBER: P918485

CATALOG NUMBER: DFN2DIP-TR4F0-120D070US930-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	12.05	12.96	12.92	13.85	14.98	8.02	8.93	8.90	9.83	10.96
	3H	13.73	14.55	14.62	15.45	16.61	9.22	10.03	10.11	10.94	12.09
	4H	14.34	15.11	15.25	16.02	17.19	9.67	10.44	10.58	11.35	12.52
	6H	14.77	15.48	15.68	16.39	17.57	10.00	10.71	10.91	11.62	12.80
	8H	14.90	15.57	15.82	16.51	17.68	10.09	10.77	11.01	11.70	12.88
	12H	14.96	15.60	15.89	16.53	17.73	10.14	10.78	11.07	11.71	12.91
4H	2H	12.07	12.85	12.99	13.76	14.92	8.62	9.40	9.54	10.31	11.47
	3H	13.91	14.55	14.83	15.49	16.67	9.98	10.63	10.90	11.57	12.75
	4H	14.61	15.19	15.54	16.13	17.33	10.54	11.12	11.47	12.06	13.26
	6H	15.13	15.63	16.07	16.59	17.80	10.96	11.46	11.91	12.42	13.63
	8H	15.30	15.77	16.25	16.73	17.95	11.09	11.56	12.04	12.51	13.73
	12H	15.40	15.82	16.37	16.80	18.02	11.16	11.58	12.13	12.55	13.78
8H	4H	14.58	15.05	15.53	16.00	17.22	10.82	11.29	11.77	12.24	13.47
	6H	15.15	15.54	16.12	16.53	17.75	11.34	11.73	12.32	12.73	13.95
	8H	15.37	15.71	16.35	16.69	17.93	11.54	11.88	12.52	12.86	14.10
	12H	15.51	15.81	16.49	16.79	18.07	11.66	11.96	12.64	12.94	14.22
12H	4H	14.54	14.96	15.50	15.93	17.16	10.83	11.25	11.80	12.22	13.45
	6H	15.13	15.47	16.11	16.45	17.69	11.39	11.74	12.38	12.72	13.96
	8H	15.35	15.65	16.33	16.63	17.91	11.61	11.91	12.59	12.89	14.17