

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: P910059

Luminaire Tested: DFN2DIP-TR4F0-050D100US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910059
REPORT IS A COMBINATION OF REPORTS P901999 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D100US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

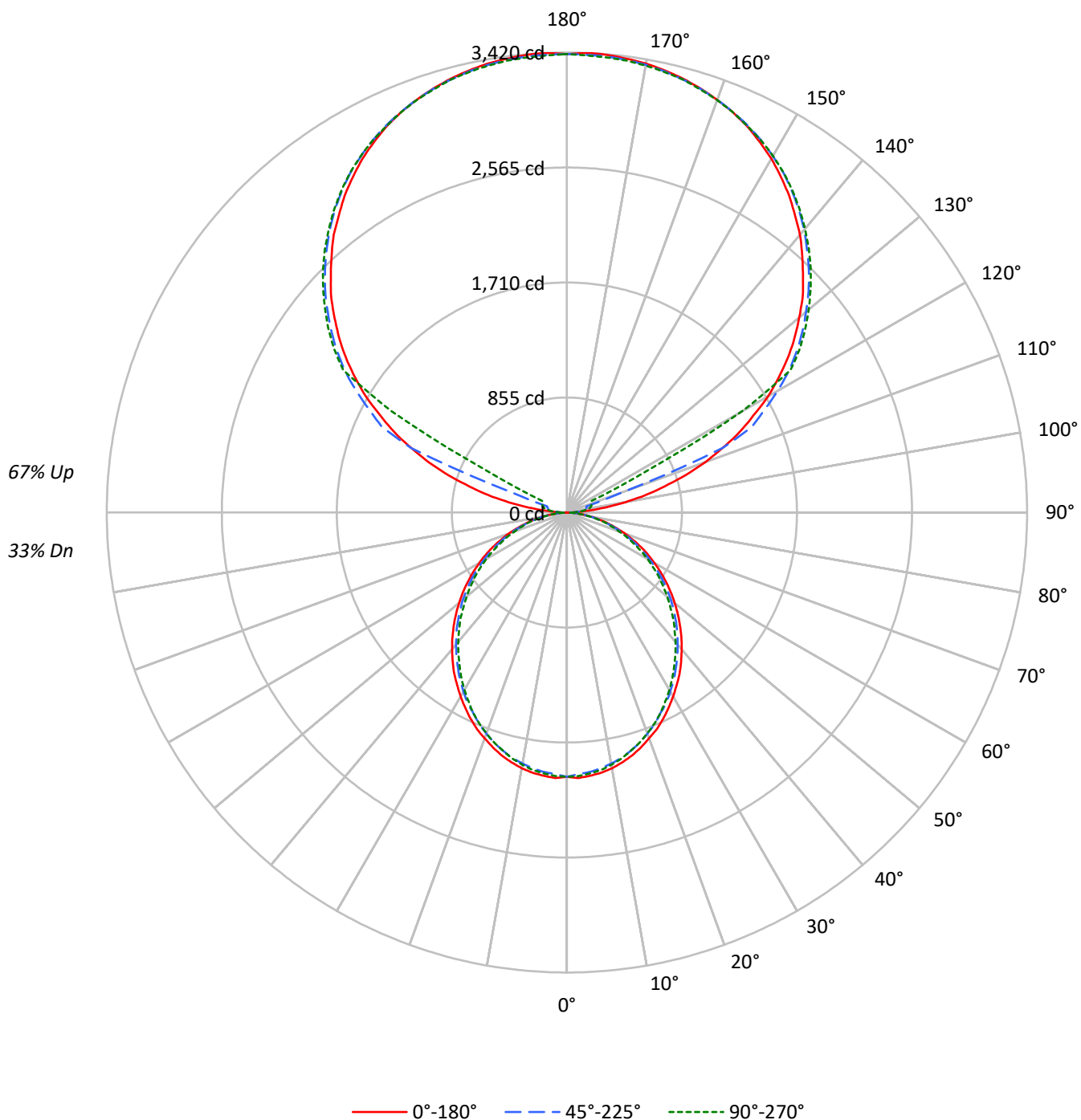
Lumens per Lamp: N/A
Luminaire Lumens: 14996.5 lumens
Efficiency: N/A
Efficacy: 126.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 118.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910059

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910059

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US840-FLONL

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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1561	1561	1561
5°	1563	1539	1549
10°	1551	1518	1528
15°	1528	1493	1496
20°	1497	1459	1462
25°	1466	1417	1423
30°	1428	1378	1374
35°	1392	1333	1322
40°	1347	1287	1272
45°	1302	1241	1221
50°	1253	1192	1162
55°	1202	1136	1108
60°	1144	1069	1046
65°	1081	1000	973
70°	1001	917	894
75°	890	816	821
80°	756	688	682
85°	547	466	452

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1807 cd/sqm

TEST NUMBER: P910059

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.9	1.2
10°-20°	520.3	3.5
20°-30°	764.6	5.1
30°-40°	888.1	5.9
40°-50°	887.0	5.9
50°-60°	773.4	5.2
60°-70°	571.7	3.8
70°-80°	323.5	2.2
80°-90°	91.4	0.6
90°-100°	112.4	0.7
100°-110°	418.9	2.8
110°-120°	1111.1	7.4
120°-130°	1842.9	12.3
130°-140°	1957.5	13.1
140°-150°	1819.3	12.1
150°-160°	1462.7	9.8
160°-170°	942.5	6.3
170°-180°	324.4	2.2
0°-30°	1469.8	9.8
0°-40°	2357.9	15.7
0°-60°	4018.3	26.8
0°-90°	5004.8	33.4
90°-120°	1642.4	11.0
90°-150°	7262.1	48.4
90°-180°	9992.0	66.6
0°-180°	14996.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1965	1965	1965	1965	1965	
5°	1965	1957	1936	1952	1948	187
15°	1870	1859	1834	1842	1833	527
25°	1693	1678	1646	1649	1646	779
35°	1460	1442	1411	1400	1390	912
45°	1188	1175	1147	1126	1118	917
55°	899	888	865	843	833	804
65°	606	595	576	559	550	600
75°	317	314	304	293	297	339
85°	77	76	74	68	66	86
90°	2	30	49	62	66	14
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

TEST NUMBER: P910059

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1964.7	1964.7	1964.7	1964.7	1964.7
2.5°	1976.1	1966.7	1945.9	1964.7	1961.2
5°	1964.7	1957.3	1936.4	1951.5	1947.9
7.5°	1951.5	1940.3	1919.5	1934.7	1930.9
10°	1930.9	1917.6	1895.0	1910.0	1904.4
12.5°	1902.4	1891.2	1868.6	1877.9	1874.1
15°	1870.3	1859.1	1834.4	1842.1	1832.6
17.5°	1830.6	1819.4	1794.7	1804.1	1794.7
20°	1787.2	1775.9	1749.5	1755.0	1747.7
22.5°	1743.8	1726.8	1702.1	1702.1	1698.3
25°	1692.7	1677.7	1645.6	1649.2	1645.6
27.5°	1636.0	1622.8	1598.3	1592.7	1583.3
30°	1579.4	1564.3	1536.0	1530.4	1522.8
32.5°	1518.9	1507.7	1477.4	1466.0	1458.4
35°	1460.4	1441.6	1411.3	1399.9	1390.5
37.5°	1394.2	1377.3	1347.0	1333.7	1324.3
40°	1326.4	1311.1	1280.8	1263.9	1256.4
42.5°	1260.2	1245.0	1214.9	1195.8	1184.6
45°	1188.4	1175.2	1146.7	1126.1	1118.4
47.5°	1118.4	1105.2	1075.0	1054.1	1042.9
50°	1044.7	1035.3	1008.9	982.4	972.9
52.5°	972.9	959.7	935.2	914.4	901.2
55°	899.4	888.0	865.3	842.6	833.2
57.5°	825.6	816.2	791.5	768.9	761.2
60°	751.8	744.5	718.0	697.1	691.6
62.5°	680.1	666.9	648.0	629.1	621.6
65°	606.5	595.1	576.2	559.3	549.8
67.5°	531.0	521.4	504.5	491.3	483.6
70°	461.0	453.4	436.4	423.1	415.8
72.5°	389.3	381.6	372.2	359.0	353.4
75°	317.3	313.7	304.1	292.9	296.7
77.5°	253.2	245.5	241.8	236.1	230.6
80°	189.0	187.0	183.2	177.6	173.8
82.5°	128.5	128.5	126.6	119.1	119.1
85°	77.4	75.5	73.7	68.0	66.1
87.5°	34.0	30.3	26.5	20.8	18.9
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7

TEST NUMBER: P910059

CATALOG NUMBER: DFN2DIP-TR4F0-050D100US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

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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	7.04	7.77	8.13	8.86	10.35	6.61	7.34	7.70	8.43	9.92
	3H	8.69	9.34	9.79	10.44	11.95	8.22	8.87	9.31	9.97	11.47
	4H	9.27	9.89	10.38	10.99	12.50	8.80	9.42	9.91	10.52	12.03
	6H	9.66	10.24	10.78	11.34	12.86	9.19	9.76	10.31	10.86	12.39
	8H	9.77	10.31	10.89	11.42	12.94	9.29	9.83	10.41	10.95	12.47
	12H	9.81	10.33	10.93	11.43	12.98	9.33	9.84	10.45	10.95	12.50
4H	2H	7.49	8.11	8.60	9.20	10.72	7.14	7.76	8.26	8.86	10.37
	3H	9.34	9.86	10.46	10.98	12.51	8.95	9.46	10.07	10.59	12.11
	4H	10.05	10.52	11.17	11.64	13.18	9.64	10.12	10.77	11.23	12.78
	6H	10.56	10.96	11.69	12.10	13.64	10.15	10.55	11.28	11.69	13.23
	8H	10.70	11.08	11.83	12.21	13.77	10.29	10.67	11.42	11.80	13.35
	12H	10.77	11.11	11.92	12.25	13.81	10.35	10.69	11.50	11.83	13.39
8H	4H	10.23	10.62	11.37	11.74	13.30	9.87	10.26	11.01	11.38	12.94
	6H	10.86	11.17	12.01	12.34	13.90	10.50	10.81	11.65	11.98	13.53
	8H	11.08	11.35	12.24	12.50	14.08	10.71	10.99	11.87	12.13	13.71
	12H	11.20	11.45	12.37	12.59	14.20	10.82	11.06	11.98	12.21	13.82
12H	4H	10.21	10.56	11.36	11.70	13.26	9.86	10.21	11.01	11.35	12.91
	6H	10.89	11.16	12.05	12.31	13.88	10.54	10.81	11.70	11.96	13.53
	8H	11.12	11.37	12.29	12.51	14.12	10.77	11.01	11.93	12.16	13.76