

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: P923657

Luminaire Tested: DFN2DIP-TR4F0-040D080US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923657
REPORT IS A COMBINATION OF REPORTS P901962 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D080US940-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

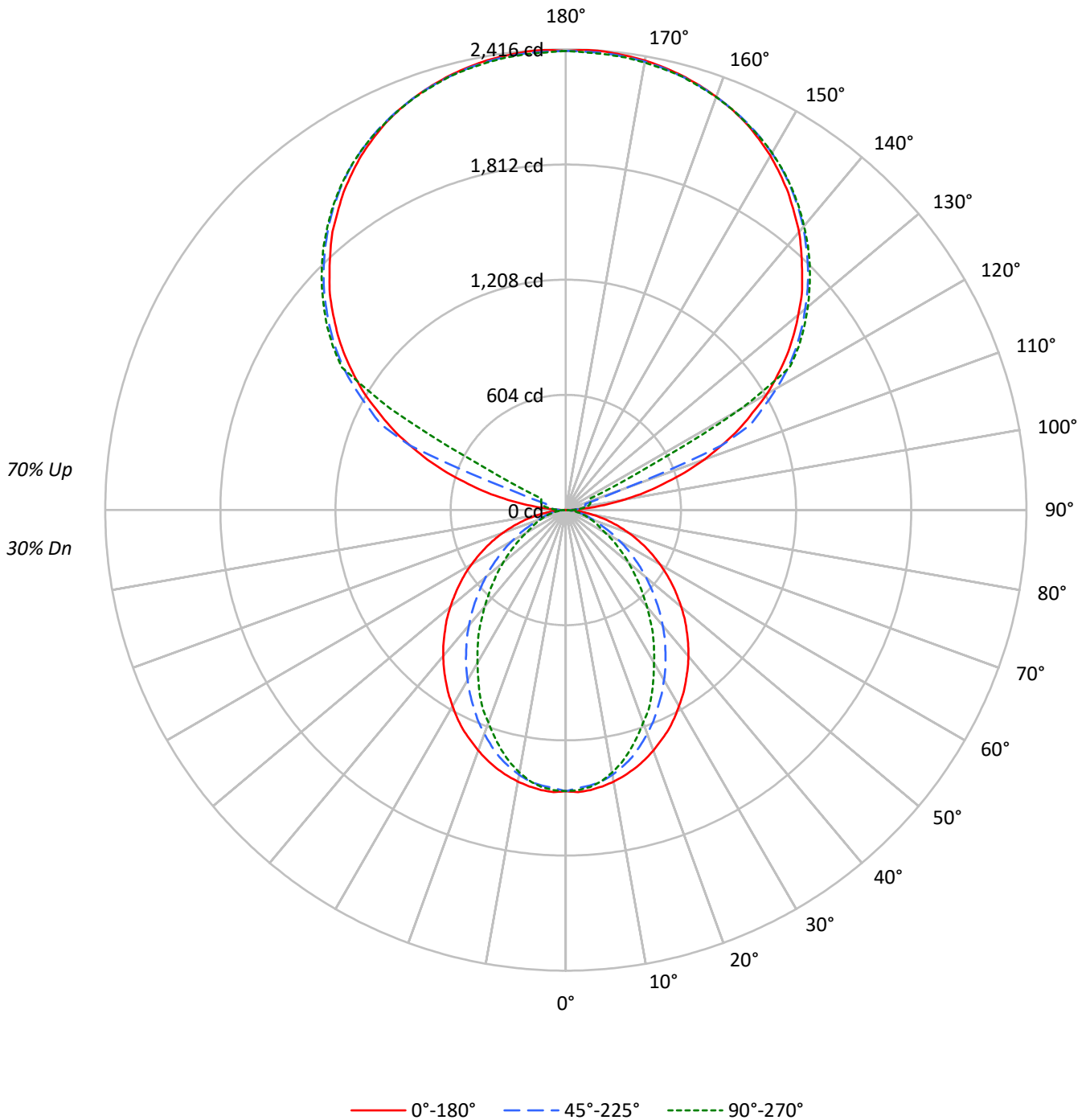
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10094.2 lumens
Efficiency: N/A
Efficacy: 110.8 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): 91.1
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

TEST NUMBER: P923657
CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P923657

CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLLONL

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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	38	30
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32	34	33	32	26	
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28	30	29	28	22	
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24	27	25	24	19	
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	17	
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18	22	20	18	15	
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13	
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	12	
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13	17	15	13	11	
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12	16	13	12	10	
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11	14	12	11	9	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1171	1171	1171
5°	1173	1153	1160
10°	1161	1130	1122
15°	1145	1093	1064
20°	1124	1041	992
25°	1103	983	923
30°	1074	924	835
35°	1045	860	758
40°	1016	795	670
45°	982	722	590
50°	948	648	512
55°	911	569	436
60°	869	487	359
65°	821	403	323
70°	762	325	292
75°	688	286	266
80°	581	240	231
85°	405	160	173

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1279 cd/sqm



TEST NUMBER: P923657

CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.2	1.4
10°-20°	379.3	3.8
20°-30°	532.5	5.3
30°-40°	580.5	5.8
40°-50°	533.5	5.3
50°-60°	419.0	4.2
60°-70°	272.7	2.7
70°-80°	140.4	1.4
80°-90°	40.1	0.4
90°-100°	79.4	0.8
100°-110°	295.9	2.9
110°-120°	784.9	7.8
120°-130°	1301.8	12.9
130°-140°	1382.8	13.7
140°-150°	1285.1	12.7
150°-160°	1033.2	10.2
160°-170°	665.8	6.6
170°-180°	229.2	2.3
0°-30°	1049.9	10.4
0°-40°	1630.4	16.2
0°-60°	2582.9	25.6
0°-90°	3036.1	30.1
90°-120°	1160.2	11.5
90°-150°	5129.9	50.8
90°-180°	7058.0	69.9
0°-180°	10094.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1474	1474	1474	1474	1474	
5°	1474	1468	1450	1462	1458	140
15°	1402	1387	1342	1317	1304	395
25°	1273	1230	1142	1087	1067	585
35°	1097	1029	911	827	798	686
45°	896	807	667	572	540	692
55°	682	578	434	354	328	609
65°	460	352	232	187	183	456
75°	245	152	107	97	96	260
85°	57	29	25	25	25	66
90°	2	21	35	44	47	9
95°	113	56	68	77	75	134
105°	530	582	106	125	132	566
115°	1002	1031	1075	268	143	986
125°	1416	1439	1472	1484	1489	1263
135°	1753	1780	1796	1814	1810	1354
145°	2033	2031	2061	2073	2064	1272
155°	2238	2223	2244	2254	2240	1032
165°	2359	2348	2354	2366	2354	666
175°	2413	2400	2404	2416	2399	230
180°	2408	2408	2408	2408	2408	



TEST NUMBER: P923657

CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1474.2	1474.2	1474.2	1474.2	1474.2
2.5°	1480.9	1474.2	1459.5	1472.9	1470.2
5°	1474.2	1467.5	1450.1	1462.1	1458.2
7.5°	1462.1	1454.2	1435.6	1440.7	1434.1
10°	1446.2	1436.8	1410.2	1406.0	1398.2
12.5°	1426.2	1414.2	1378.0	1370.1	1355.4
15°	1402.1	1387.4	1342.1	1316.8	1303.5
17.5°	1374.1	1352.7	1296.6	1267.4	1246.0
20°	1342.1	1315.4	1248.7	1215.4	1186.0
22.5°	1307.4	1276.8	1199.3	1154.0	1134.1
25°	1272.7	1230.0	1141.9	1087.4	1067.2
27.5°	1231.5	1186.0	1088.6	1025.9	995.1
30°	1187.4	1136.6	1029.8	961.9	925.9
32.5°	1144.7	1083.2	973.9	893.9	860.4
35°	1096.7	1028.6	911.2	827.2	797.7
37.5°	1050.0	976.5	852.5	760.4	727.1
40°	1000.6	920.6	791.1	696.4	661.7
42.5°	949.8	864.5	729.8	631.0	597.7
45°	896.5	807.1	667.1	572.3	540.3
47.5°	845.9	751.2	607.1	512.3	483.0
50°	789.8	695.1	548.3	456.2	428.3
52.5°	735.0	635.0	492.3	404.2	378.9
55°	681.7	577.6	433.5	353.6	328.2
57.5°	627.1	520.3	381.6	306.8	285.5
60°	571.0	464.2	326.8	258.9	237.6
62.5°	516.4	409.7	280.1	216.2	205.5
65°	460.3	352.1	232.1	186.8	182.7
67.5°	407.0	298.8	186.8	164.1	160.1
70°	350.9	246.8	154.7	141.4	136.0
72.5°	297.6	198.8	129.4	118.8	116.1
75°	245.4	152.0	106.7	97.4	96.1
77.5°	193.5	108.0	84.1	78.7	76.0
80°	145.3	77.4	63.9	58.8	58.8
82.5°	101.4	52.1	44.1	41.3	41.3
85°	57.3	29.3	25.3	25.3	25.3
87.5°	21.4	10.6	10.6	9.4	9.4
90°	1.7	20.9	34.8	43.6	47.0
92.5°	43.6	36.6	41.8	45.3	47.0
95°	113.2	55.6	67.9	76.8	74.9
97.5°	203.8	61.0	88.7	94.2	95.8
100°	308.4	69.7	99.3	113.2	116.6
102.5°	423.3	419.9	102.8	121.8	127.2
105°	529.6	581.9	106.3	125.4	132.4
107.5°	653.3	696.7	109.9	128.9	135.9
110°	771.9	808.2	305.0	130.7	137.6



TEST NUMBER: P923657

CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	883.3	914.5	885.0	134.0	139.5
115°	1001.7	1031.3	1074.9	268.3	142.9
117.5°	1104.5	1139.2	1169.0	919.7	463.4
120°	1219.5	1245.5	1277.0	1297.9	1062.7
122.5°	1316.9	1344.9	1379.8	1390.2	1392.0
125°	1416.2	1439.0	1472.0	1484.3	1489.4
127.5°	1506.8	1531.2	1557.6	1574.8	1576.5
130°	1592.2	1620.1	1639.2	1658.5	1656.8
132.5°	1679.4	1702.1	1721.2	1736.9	1735.2
135°	1752.6	1780.5	1796.0	1813.6	1810.1
137.5°	1829.2	1850.0	1867.6	1885.0	1879.8
140°	1904.0	1918.1	1937.2	1952.8	1944.1
142.5°	1966.9	1979.1	2001.6	2015.5	2006.8
145°	2033.1	2031.2	2060.8	2073.0	2064.3
147.5°	2090.4	2085.3	2114.8	2123.5	2116.7
150°	2146.3	2134.0	2162.0	2172.3	2163.6
152.5°	2193.3	2179.3	2205.4	2216.0	2203.8
155°	2238.5	2223.0	2243.9	2254.2	2240.4
157.5°	2275.1	2261.3	2277.0	2289.2	2275.1
160°	2306.6	2296.1	2306.6	2316.9	2304.7
162.5°	2334.3	2324.0	2332.6	2344.8	2329.1
165°	2358.8	2348.4	2353.6	2365.7	2353.6
167.5°	2377.9	2367.4	2372.8	2385.0	2369.3
170°	2393.7	2383.1	2386.7	2398.9	2383.1
172.5°	2404.1	2393.7	2397.2	2409.4	2393.7
175°	2412.7	2400.5	2404.1	2416.2	2398.9
177.5°	2416.2	2404.1	2405.8	2418.1	2402.4
180°	2407.5	2407.5	2407.5	2407.5	2407.5



TEST NUMBER: P923657
 CATALOG NUMBER: DFN2DIP-TR4F0-040D080US940-RLONL

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	5.47	6.16	6.59	7.27	8.80	1.44	2.13	2.56	3.24	4.77
	3H	7.14	7.75	8.26	8.87	10.42	2.62	3.24	3.75	4.35	5.90
	4H	7.74	8.32	8.87	9.44	10.99	3.07	3.65	4.20	4.77	6.32
	6H	8.15	8.69	9.29	9.81	11.37	3.38	3.92	4.52	5.04	6.60
	8H	8.27	8.79	9.42	9.92	11.48	3.47	3.98	4.61	5.11	6.67
	12H	8.33	8.82	9.48	9.95	11.53	3.51	3.99	4.66	5.12	6.70
4H	2H	5.47	6.06	6.61	7.17	8.73	2.02	2.61	3.16	3.72	5.28
	3H	7.29	7.77	8.43	8.92	10.48	3.36	3.85	4.51	4.99	6.55
	4H	7.97	8.42	9.12	9.55	11.14	3.90	4.35	5.05	5.48	7.07
	6H	8.48	8.86	9.64	10.02	11.59	4.32	4.70	5.47	5.85	7.43
	8H	8.65	9.01	9.81	10.16	11.75	4.44	4.80	5.60	5.95	7.54
	12H	8.74	9.07	9.91	10.22	11.82	4.50	4.82	5.67	5.98	7.58
8H	4H	7.93	8.29	9.09	9.43	11.03	4.17	4.53	5.33	5.68	7.27
	6H	8.49	8.79	9.67	9.97	11.56	4.69	4.98	5.86	6.17	7.76
	8H	8.71	8.96	9.89	10.13	11.74	4.88	5.13	6.06	6.30	7.91
	12H	8.84	9.07	10.02	10.23	11.87	4.99	5.22	6.17	6.38	8.02
12H	4H	7.88	8.20	9.05	9.36	10.96	4.17	4.49	5.34	5.65	7.25
	6H	8.47	8.72	9.65	9.89	11.50	4.74	4.99	5.92	6.16	7.77
	8H	8.68	8.91	9.86	10.07	11.71	4.94	5.17	6.12	6.33	7.97