

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: P912928

Luminaire Tested: DFN2DIP-TR4F0-090D090US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912928
REPORT IS A COMBINATION OF REPORTS P900470 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D090US850-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

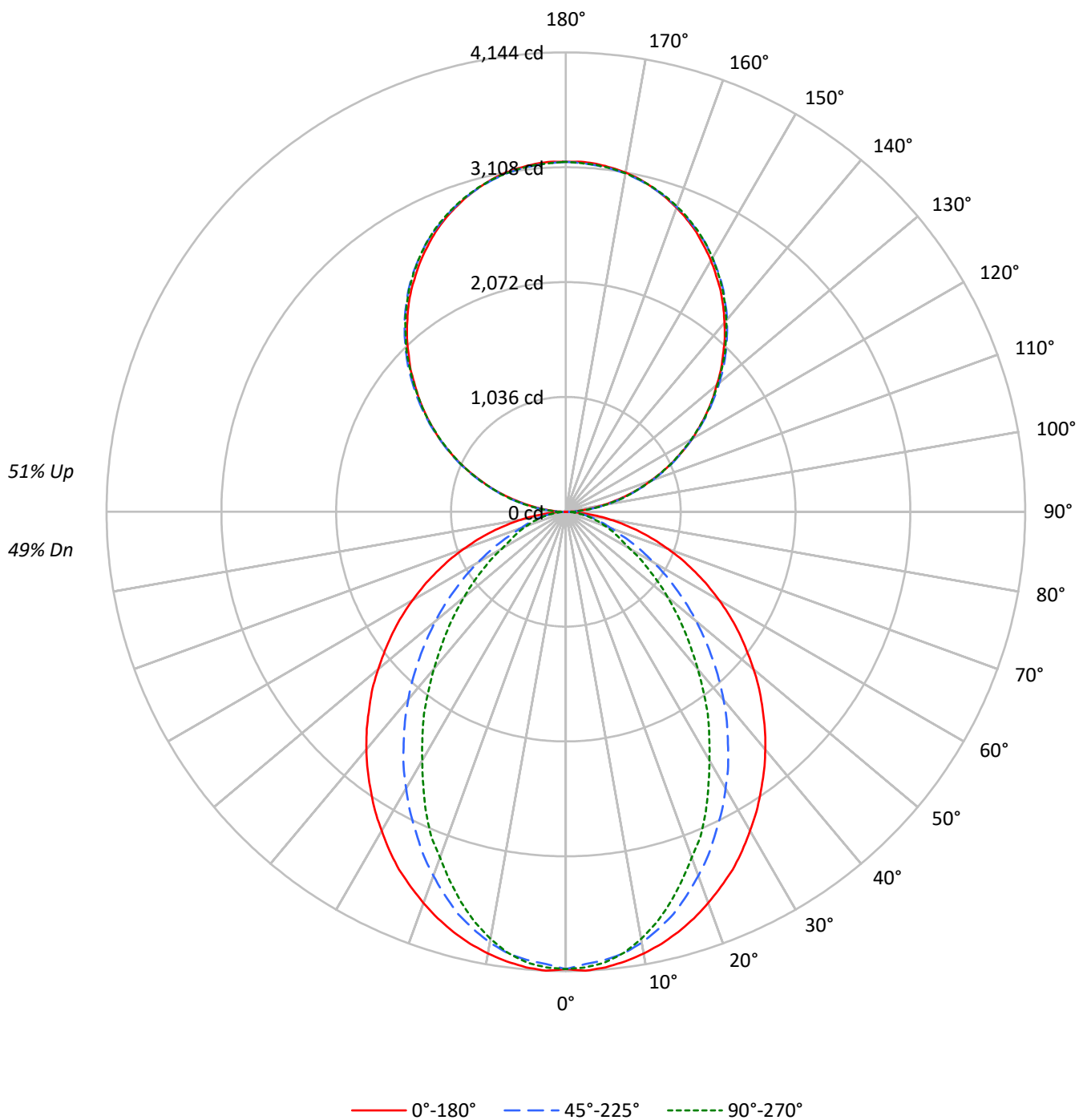
Lumens per Lamp: N/A
Luminaire Lumens: 17317.1 lumens
Efficiency: N/A
Efficacy: 111.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 155.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912928

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US850-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P912928

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US850-RLLFLL

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3277	3277	3277
5°	3282	3225	3246
10°	3250	3162	3140
15°	3205	3057	2977
20°	3146	2913	2776
25°	3086	2752	2583
30°	3004	2586	2337
35°	2924	2408	2122
40°	2843	2224	1874
45°	2749	2019	1650
50°	2652	1813	1431
55°	2550	1593	1221
60°	2432	1362	1005
65°	2297	1128	905
70°	2133	910	818
75°	1926	802	744
80°	1628	672	645
85°	1134	449	485

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2749 cd/sqm

TEST NUMBER: P912928

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US850-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	2.2
10°-20°	1061.3	6.1
20°-30°	1490.1	8.6
30°-40°	1624.3	9.4
40°-50°	1492.9	8.6
50°-60°	1172.4	6.8
60°-70°	763.1	4.4
70°-80°	392.8	2.3
80°-90°	109.3	0.6
90°-100°	195.3	1.1
100°-110°	620.6	3.6
110°-120°	1062.1	6.1
120°-130°	1396.8	8.1
130°-140°	1567.9	9.1
140°-150°	1537.5	8.9
150°-160°	1289.7	7.4
160°-170°	855.3	4.9
170°-180°	299.0	1.7
0°-30°	2938.0	17.0
0°-40°	4562.3	26.3
0°-60°	7227.6	41.7
0°-90°	8492.9	49.0
90°-120°	1878.1	10.8
90°-150°	6380.2	36.8
90°-180°	8824.0	51.0
0°-180°	17317.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
90°	3	34	93	88	90	17
95°	139	166	170	170	166	155
105°	573	580	586	591	591	605
115°	1066	1081	1076	1074	1066	1054
125°	1550	1574	1566	1558	1555	1385
135°	2005	2035	2040	2038	2030	1550
145°	2434	2453	2468	2471	2461	1521
155°	2784	2791	2800	2813	2805	1281
165°	3028	3025	3025	3044	3031	854
175°	3151	3143	3138	3157	3140	299
180°	3157	3157	3157	3157	3157	

TEST NUMBER: P912928

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US850-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
90°	2.9	34.3	93.3	87.5	90.4
92.5°	59.0	80.0	82.8	85.6	85.6
95°	139.0	165.6	170.3	170.3	165.6
97.5°	231.2	256.0	266.5	266.5	266.5
100°	337.8	359.8	367.3	367.3	364.5
102.5°	450.1	466.3	476.8	479.6	476.8
105°	572.9	580.5	586.2	591.0	591.0
107.5°	694.7	706.1	706.1	708.0	694.7
110°	812.7	828.0	828.0	828.0	820.3

TEST NUMBER: P912928

CATALOG NUMBER: DFN2DIP-TR4F0-090D090US850-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	940.2	956.4	953.5	946.0	940.2
115°	1065.9	1081.1	1076.3	1073.5	1065.9
117.5°	1190.5	1211.5	1198.2	1190.5	1182.9
120°	1316.2	1337.0	1316.2	1316.2	1307.5
122.5°	1430.3	1457.0	1443.7	1436.0	1430.3
125°	1550.3	1574.0	1566.5	1557.8	1555.0
127.5°	1667.3	1696.8	1686.3	1674.9	1667.3
130°	1776.7	1811.0	1806.2	1800.5	1790.0
132.5°	1899.5	1926.1	1928.0	1914.7	1907.1
135°	2005.1	2034.6	2040.3	2037.5	2029.9
137.5°	2123.1	2146.9	2151.7	2149.8	2138.4
140°	2226.9	2250.6	2263.9	2263.9	2253.5
142.5°	2333.4	2357.2	2364.8	2367.7	2357.2
145°	2434.4	2453.3	2468.5	2471.4	2461.0
147.5°	2524.7	2548.5	2559.9	2564.7	2554.2
150°	2618.0	2634.2	2644.6	2653.2	2644.6
152.5°	2700.7	2716.9	2730.2	2740.8	2730.2
155°	2783.6	2791.1	2799.8	2813.1	2804.6
157.5°	2854.9	2860.7	2865.4	2884.4	2871.1
160°	2918.7	2924.4	2927.3	2943.4	2932.0
162.5°	2977.7	2977.7	2980.5	2998.6	2985.3
165°	3028.1	3025.2	3025.2	3044.3	3031.0
167.5°	3073.8	3065.3	3065.3	3084.2	3070.9
170°	3108.1	3100.4	3097.7	3116.6	3100.4
172.5°	3131.8	3124.3	3121.4	3140.5	3124.3
175°	3150.9	3143.2	3137.6	3156.7	3140.5
177.5°	3161.3	3153.8	3148.0	3164.2	3148.0
180°	3156.7	3156.7	3156.7	3156.7	3156.7

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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	11.17	12.00	12.15	12.98	14.27	7.15	7.97	8.12	8.95	10.24
	3H	12.85	13.59	13.83	14.58	15.89	8.34	9.07	9.32	10.06	11.37
	4H	13.46	14.15	14.46	15.15	16.47	8.79	9.48	9.78	10.48	11.79
	6H	13.88	14.52	14.89	15.52	16.85	9.11	9.75	10.12	10.75	12.08
	8H	14.01	14.61	15.02	15.63	16.96	9.20	9.81	10.21	10.82	12.15
	12H	14.07	14.65	15.08	15.65	17.01	9.24	9.82	10.26	10.83	12.18
4H	2H	11.19	11.89	12.19	12.88	14.20	7.74	8.44	8.74	9.43	10.75
	3H	13.02	13.60	14.03	14.62	15.95	9.09	9.67	10.10	10.69	12.02
	4H	13.71	14.24	14.73	15.26	16.61	9.64	10.17	10.66	11.18	12.54
	6H	14.23	14.68	15.26	15.72	17.07	10.06	10.51	11.09	11.55	12.90
	8H	14.40	14.82	15.43	15.86	17.22	10.19	10.61	11.22	11.65	13.01
	12H	14.50	14.88	15.54	15.92	17.30	10.26	10.64	11.30	11.68	13.06
8H	4H	13.68	14.10	14.71	15.13	16.50	9.92	10.34	10.95	11.38	12.74
	6H	14.24	14.59	15.30	15.67	17.03	10.44	10.79	11.49	11.86	13.23
	8H	14.46	14.77	15.52	15.83	17.21	10.63	10.94	11.69	12.00	13.38
	12H	14.60	14.87	15.66	15.92	17.35	10.75	11.02	11.82	12.07	13.50
12H	4H	13.63	14.01	14.68	15.06	16.43	9.92	10.31	10.97	11.35	12.72
	6H	14.22	14.53	15.28	15.59	16.97	10.49	10.80	11.55	11.86	13.24
	8H	14.44	14.71	15.50	15.76	17.19	10.70	10.97	11.76	12.02	13.45