

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: P913036

Luminaire Tested: DFN2DIP-TR4F0-120D090US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913036
REPORT IS A COMBINATION OF REPORTS P900476 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D090US850-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

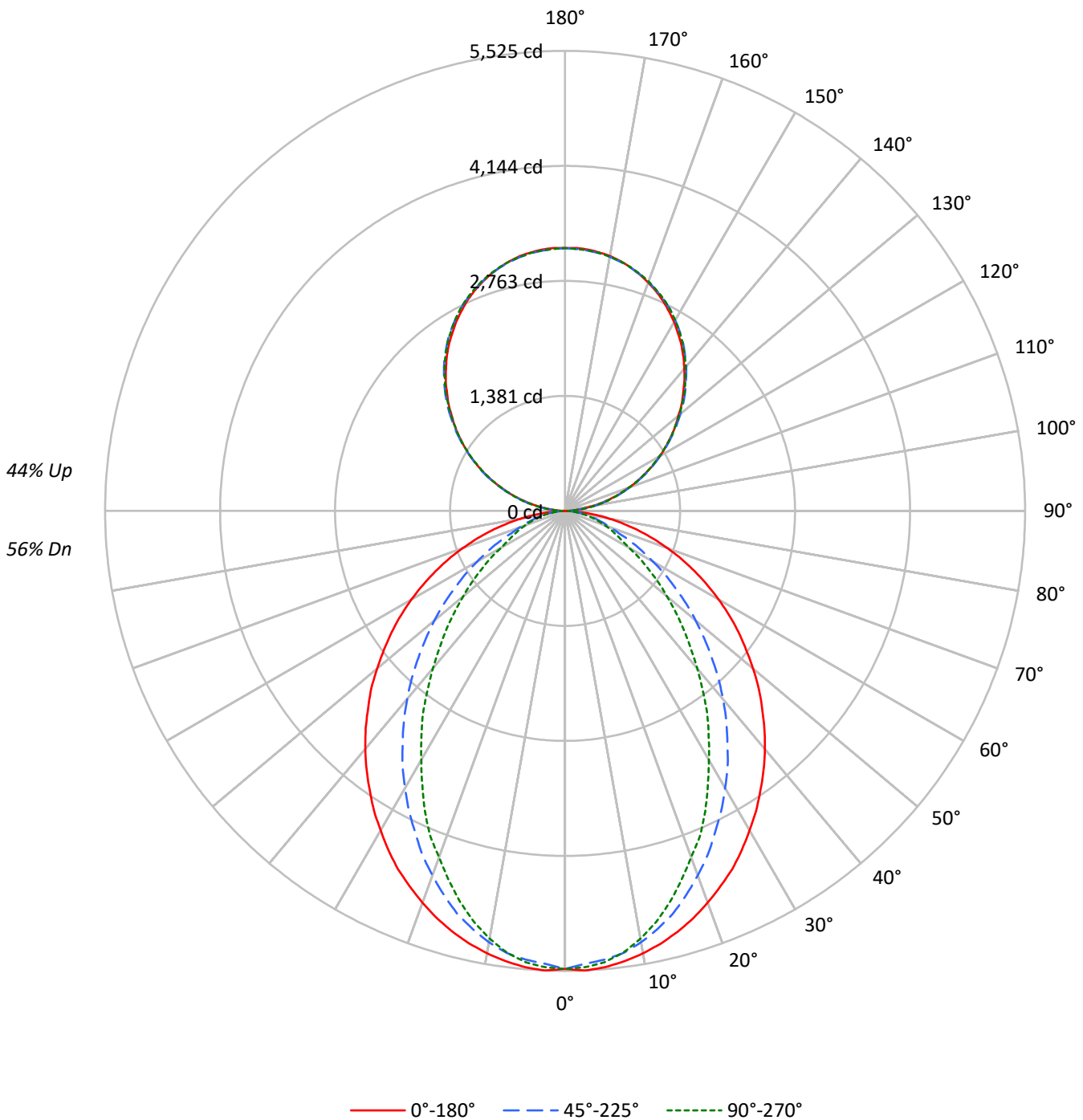
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20145.0 lumens
Efficiency: N/A
Efficacy: 104.2 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): 193.3
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: P913036
CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P913036
 CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-RLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56	56	56	56
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	55	54	53	48	48	48	48
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	49	47	46	41	41	41	41
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40	36	36	36	36
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35	31	31	31	31
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	30	27	27	27	27
6	65	53	46	40	61	50	43	38	44	38	34	38	34	31	33	30	27	24	24	24	24
7	61	48	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24	22	22	22	22
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20	18	18	18	18
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18	16	16	16	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4370	4370	4370
5°	4377	4300	4328
10°	4333	4216	4187
15°	4274	4076	3969
20°	4195	3884	3702
25°	4114	3669	3444
30°	4005	3448	3116
35°	3899	3211	2829
40°	3791	2965	2499
45°	3665	2693	2200
50°	3535	2418	1909
55°	3400	2124	1628
60°	3243	1816	1340
65°	3062	1504	1206
70°	2843	1212	1091
75°	2568	1069	992
80°	2170	896	860
85°	1513	598	646

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3665 cd/sqm



TEST NUMBER: P913036

CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	515.5	2.6
10°-20°	1415.1	7.0
20°-30°	1986.8	9.9
30°-40°	2165.7	10.8
40°-50°	1990.5	9.9
50°-60°	1563.2	7.8
60°-70°	1017.5	5.1
70°-80°	523.8	2.6
80°-90°	142.7	0.7
90°-100°	195.3	1.0
100°-110°	620.6	3.1
110°-120°	1062.1	5.3
120°-130°	1396.8	6.9
130°-140°	1567.9	7.8
140°-150°	1537.5	7.6
150°-160°	1289.7	6.4
160°-170°	855.3	4.2
170°-180°	299.0	1.5
0°-30°	3917.3	19.4
0°-40°	6083.0	30.2
0°-60°	9636.8	47.8
0°-90°	11320.7	56.2
90°-120°	1878.1	9.3
90°-150°	6380.2	31.7
90°-180°	8824.0	43.8
0°-180°	20145.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5500	5500	5500	5500	5500	
5°	5500	5475	5410	5455	5440	522
15°	5231	5176	5008	4913	4863	1474
25°	4749	4589	4261	4057	3982	2184
35°	4092	3838	3400	3086	2976	2561
45°	3345	3011	2489	2135	2016	2583
55°	2543	2155	1618	1319	1225	2273
65°	1717	1314	866	697	682	1703
75°	916	567	398	363	358	969
85°	214	109	94	94	94	246
90°	3	34	93	88	90	20
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: P913036

CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5500.2	5500.2	5500.2	5500.2	5500.2
2.5°	5525.0	5500.2	5445.3	5495.4	5485.3
5°	5500.2	5475.4	5410.4	5455.3	5440.5
7.5°	5455.3	5425.7	5356.0	5375.5	5350.7
10°	5395.6	5360.8	5261.4	5246.1	5216.6
12.5°	5321.1	5276.3	5141.5	5112.0	5057.2
15°	5231.4	5176.5	5007.5	4912.9	4863.3
17.5°	5126.8	5047.1	4837.9	4728.7	4648.9
20°	5007.5	4907.7	4658.9	4534.8	4424.9
22.5°	4878.0	4763.5	4474.6	4305.6	4231.2
25°	4748.7	4589.2	4260.7	4056.8	3981.9
27.5°	4594.5	4424.9	4061.6	3827.7	3713.0
30°	4430.2	4240.7	3842.5	3588.9	3454.3
32.5°	4270.8	4041.5	3633.9	3335.0	3210.3
35°	4091.8	3837.7	3399.9	3086.2	2976.3
37.5°	3917.4	3643.4	3180.7	2836.9	2712.8
40°	3733.1	3434.8	2951.6	2598.3	2468.9
42.5°	3544.0	3225.6	2722.9	2354.3	2230.2
45°	3345.0	3011.3	2488.9	2135.2	2015.7
47.5°	3155.9	2802.7	2265.0	1911.3	1801.9
50°	2946.8	2593.5	2045.9	1702.1	1598.1
52.5°	2742.4	2369.0	1836.7	1508.2	1413.8
55°	2543.4	2155.2	1617.6	1319.2	1224.7
57.5°	2339.4	1941.3	1423.7	1144.9	1065.2
60°	2130.4	1732.1	1219.3	965.9	886.2
62.5°	1926.6	1528.3	1045.1	806.5	766.8
65°	1717.4	1313.9	866.1	697.1	681.8
67.5°	1518.3	1114.8	697.1	612.1	597.3
70°	1309.2	921.0	577.2	527.6	507.5
72.5°	1110.1	741.5	482.6	443.0	433.1
75°	915.7	567.1	398.2	363.3	358.5
77.5°	722.0	402.9	313.7	293.7	283.6
80°	542.4	288.9	238.7	219.1	219.1
82.5°	378.2	194.3	164.2	154.2	154.2
85°	213.9	109.3	94.5	94.5	94.5
87.5°	79.7	39.6	39.6	34.8	34.8
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: P913036

CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-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



TEST NUMBER: P913036
 CATALOG NUMBER: DFN2DIP-TR4F0-120D090US850-RLLFLL

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	12.82	13.71	13.73	14.63	15.81	8.80	9.68	9.71	10.60	11.79
	3H	14.51	15.30	15.43	16.23	17.44	9.99	10.78	10.91	11.71	12.92
	4H	15.12	15.86	16.05	16.80	18.02	10.44	11.19	11.38	12.13	13.35
	6H	15.54	16.23	16.49	17.17	18.40	10.77	11.46	11.72	12.40	13.63
	8H	15.67	16.32	16.62	17.28	18.51	10.86	11.52	11.82	12.48	13.70
	12H	15.73	16.35	16.69	17.31	18.56	10.91	11.53	11.87	12.48	13.74
4H	2H	12.85	13.60	13.79	14.53	15.75	9.40	10.15	10.34	11.08	12.30
	3H	14.68	15.30	15.63	16.27	17.50	10.76	11.38	11.71	12.34	13.57
	4H	15.38	15.94	16.34	16.90	18.16	11.31	11.87	12.27	12.83	14.09
	6H	15.89	16.38	16.87	17.37	18.62	11.73	12.22	12.70	13.20	14.46
	8H	16.07	16.53	17.05	17.50	18.77	11.86	12.31	12.84	13.29	14.56
	12H	16.17	16.58	17.16	17.57	18.85	11.93	12.34	12.92	13.33	14.61
8H	4H	15.35	15.80	16.32	16.78	18.05	11.59	12.04	12.57	13.02	14.29
	6H	15.92	16.29	16.92	17.31	18.58	12.11	12.49	13.11	13.51	14.78
	8H	16.13	16.46	17.14	17.47	18.76	12.30	12.63	13.31	13.64	14.93
	12H	16.27	16.57	17.29	17.57	18.90	12.43	12.72	13.44	13.72	15.05
12H	4H	15.30	15.71	16.30	16.71	17.98	11.60	12.01	12.59	13.00	14.28
	6H	15.89	16.22	16.90	17.23	18.52	12.16	12.49	13.17	13.50	14.79
	8H	16.12	16.41	17.13	17.41	18.74	12.37	12.67	13.39	13.67	15.00