

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: P926547

Luminaire Tested: DFN2DIP-TR4F0-090D040US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926547
REPORT IS A COMBINATION OF REPORTS P901899 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D040US950-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

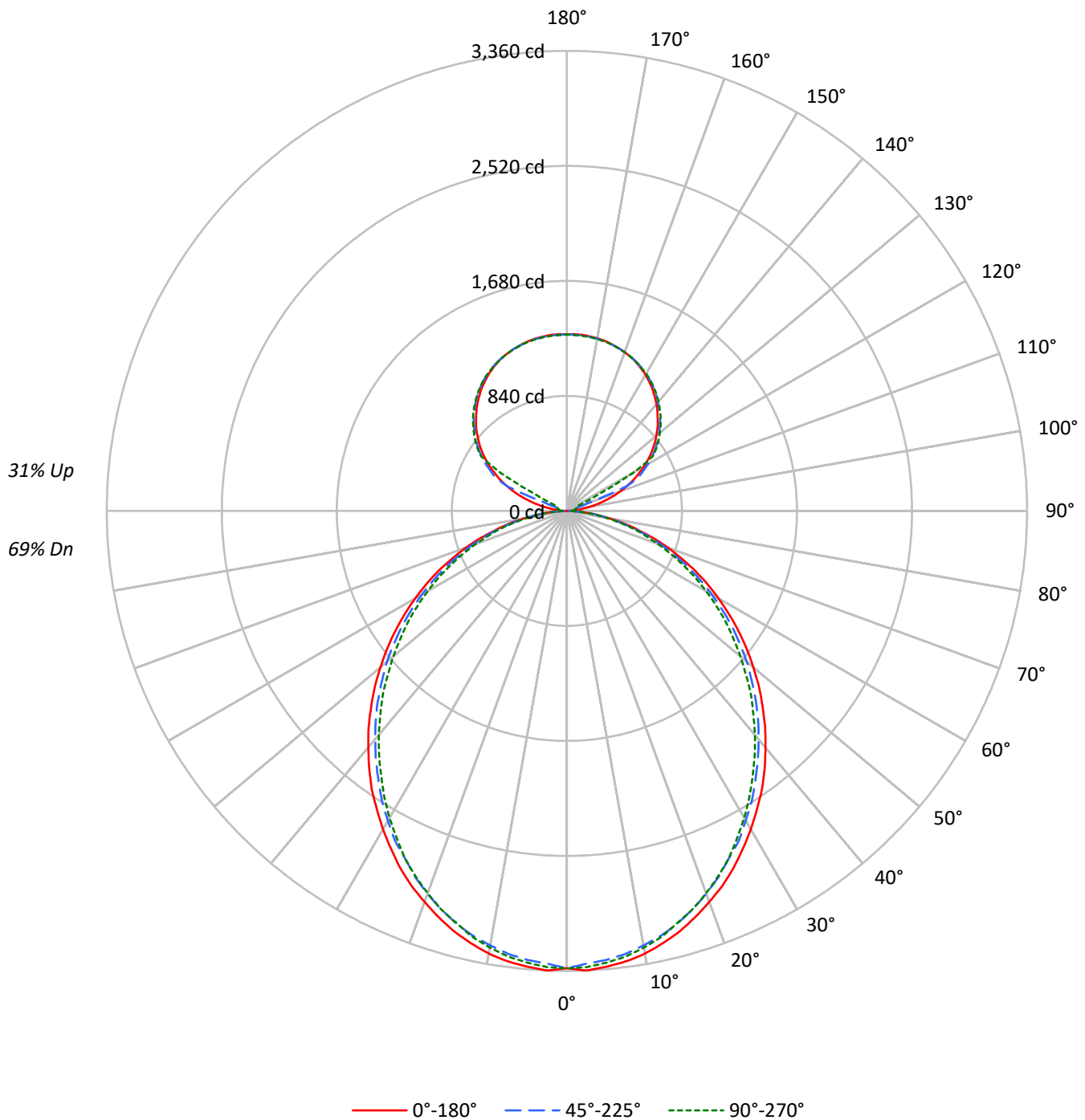
Lumens per Lamp: N/A
Luminaire Lumens: 12278.0 lumens
Efficiency: N/A
Efficacy: 104.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 117.8
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

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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
RCR																	
0	112	112	112	112	106	106	106	106	94	94	94		83	83	83		74
1	102	98	94	90	96	92	89	86	83	80	77		74	72	70		65
2	93	85	79	74	88	81	75	70	72	68	64		65	61	58		57
3	85	75	67	61	80	71	64	59	64	59	54		57	53	49		51
4	78	67	58	52	73	63	56	50	57	51	46		51	46	42		46
5	71	59	51	45	67	57	49	43	51	45	40		46	41	37		41
6	66	53	45	39	62	51	43	38	46	40	35		42	36	32		37
7	61	48	40	34	58	46	39	33	42	36	31		38	33	29		34
8	57	44	36	31	54	42	35	30	38	32	28		35	29	26		31
9	53	40	33	27	50	39	31	27	35	29	25		32	27	23		29
10	50	37	30	25	47	36	29	24	32	27	22		30	25	21		27

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2654	2654	2654
5°	2658	2617	2635
10°	2637	2582	2599
15°	2598	2539	2543
20°	2546	2480	2486
25°	2494	2410	2420
30°	2428	2344	2336
35°	2367	2266	2247
40°	2290	2188	2163
45°	2214	2109	2076
50°	2131	2027	1976
55°	2044	1932	1884
60°	1946	1818	1778
65°	1839	1701	1654
70°	1703	1559	1520
75°	1513	1388	1396
80°	1286	1170	1160
85°	931	794	769

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2214 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	314.4	2.6
10°-20°	884.7	7.2
20°-30°	1300.2	10.6
30°-40°	1510.1	12.3
40°-50°	1508.2	12.3
50°-60°	1315.1	10.7
60°-70°	972.2	7.9
70°-80°	550.0	4.5
80°-90°	147.4	1.2
90°-100°	42.5	0.3
100°-110°	158.3	1.3
110°-120°	419.9	3.4
120°-130°	696.4	5.7
130°-140°	739.7	6.0
140°-150°	687.5	5.6
150°-160°	552.7	4.5
160°-170°	356.1	2.9
170°-180°	122.6	1.0
0°-30°	2499.3	20.4
0°-40°	4009.4	32.7
0°-60°	6832.8	55.7
0°-90°	8502.4	69.2
90°-120°	620.6	5.1
90°-150°	2744.1	22.4
90°-180°	3776.0	30.8
0°-180°	12278.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3341	3341	3341	3341	3341	
5°	3341	3328	3293	3318	3312	317
15°	3180	3161	3119	3132	3116	896
25°	2878	2853	2798	2804	2798	1324
35°	2483	2451	2400	2380	2364	1551
45°	2021	1998	1950	1915	1902	1560
55°	1529	1510	1471	1433	1417	1367
65°	1031	1012	980	951	935	1020
75°	540	533	517	498	504	576
85°	132	128	126	116	112	147
90°	1	11	19	23	25	11
95°	60	30	36	41	40	72
105°	283	311	57	67	71	303
115°	536	552	575	144	76	527
125°	758	770	787	794	797	676
135°	938	952	961	970	968	724
145°	1088	1087	1102	1109	1104	680
155°	1198	1189	1200	1206	1198	552
165°	1262	1256	1259	1266	1259	356
175°	1291	1284	1286	1292	1283	123
180°	1288	1288	1288	1288	1288	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3340.8	3340.8	3340.8	3340.8	3340.8
2.5°	3360.3	3344.2	3308.9	3340.8	3334.7
5°	3340.8	3328.2	3292.8	3318.4	3312.2
7.5°	3318.4	3299.3	3263.8	3289.8	3283.3
10°	3283.3	3260.8	3222.2	3247.8	3238.3
12.5°	3234.8	3215.7	3177.3	3193.2	3186.8
15°	3180.3	3161.3	3119.3	3132.3	3116.2
17.5°	3112.8	3093.7	3051.8	3067.9	3051.8
20°	3038.9	3019.8	2974.8	2984.3	2971.7
22.5°	2965.2	2936.3	2894.3	2894.3	2887.9
25°	2878.3	2852.7	2798.3	2804.4	2798.3
27.5°	2781.9	2759.3	2717.9	2708.3	2692.3
30°	2685.8	2659.8	2611.8	2602.2	2589.3
32.5°	2582.9	2563.8	2512.3	2492.9	2479.9
35°	2483.4	2451.3	2399.8	2380.4	2364.4
37.5°	2370.9	2341.9	2290.4	2267.9	2251.9
40°	2255.3	2229.4	2177.9	2149.3	2136.4
42.5°	2142.8	2116.9	2065.8	2033.5	2014.4
45°	2020.8	1998.3	1949.9	1914.8	1901.9
47.5°	1901.9	1879.4	1827.9	1792.5	1773.4
50°	1776.4	1760.4	1715.4	1670.5	1654.4
52.5°	1654.4	1631.9	1590.3	1554.9	1532.4
55°	1529.4	1509.9	1471.4	1432.9	1416.9
57.5°	1403.9	1387.9	1346.0	1307.5	1294.5
60°	1278.5	1265.9	1220.8	1185.4	1175.9
62.5°	1156.4	1133.9	1101.9	1069.9	1056.9
65°	1031.4	1011.9	979.9	950.9	934.9
67.5°	902.9	886.6	857.8	835.4	822.4
70°	783.9	770.9	742.0	719.5	706.9
72.5°	661.9	648.9	632.9	610.5	600.9
75°	539.6	533.4	517.1	498.0	504.5
77.5°	430.4	417.6	411.1	401.5	392.0
80°	321.4	318.0	311.5	301.9	295.5
82.5°	218.5	218.5	215.4	202.4	202.4
85°	131.6	128.5	125.5	115.5	112.5
87.5°	57.9	51.4	45.0	35.5	32.1
90°	0.9	11.2	18.6	23.4	25.1
92.5°	23.4	19.6	22.3	24.2	25.1
95°	60.5	29.8	36.3	41.0	40.1
97.5°	109.0	32.6	47.5	50.4	51.2
100°	164.9	37.3	53.1	60.5	62.4
102.5°	226.4	224.7	55.0	65.2	68.0
105°	283.2	311.3	56.9	67.1	70.8
107.5°	349.5	372.7	58.8	69.0	72.7
110°	412.9	432.4	163.1	69.9	73.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	472.5	489.2	473.4	71.7	74.6
115°	535.8	551.6	575.0	143.5	76.5
117.5°	590.8	609.4	625.3	492.0	247.8
120°	652.3	666.3	683.1	694.3	568.5
122.5°	704.4	719.4	738.1	743.6	744.6
125°	757.6	769.8	787.4	794.0	796.8
127.5°	806.0	819.1	833.1	842.5	843.3
130°	851.7	866.7	876.8	887.1	886.3
132.5°	898.3	910.5	920.7	929.1	928.2
135°	937.5	952.5	960.8	970.1	968.3
137.5°	978.4	989.6	999.0	1008.3	1005.5
140°	1018.5	1026.0	1036.2	1044.6	1040.0
142.5°	1052.2	1058.7	1070.8	1078.1	1073.5
145°	1087.6	1086.6	1102.3	1108.9	1104.3
147.5°	1118.2	1115.4	1131.3	1135.9	1132.3
150°	1148.0	1141.6	1156.5	1162.1	1157.4
152.5°	1173.2	1165.8	1179.7	1185.3	1178.9
155°	1197.5	1189.2	1200.3	1205.9	1198.4
157.5°	1217.0	1209.6	1218.1	1224.6	1217.0
160°	1233.8	1228.2	1233.8	1239.3	1232.9
162.5°	1248.7	1243.2	1247.8	1254.3	1245.9
165°	1261.8	1256.2	1259.0	1265.5	1259.0
167.5°	1272.1	1266.3	1269.3	1275.8	1267.4
170°	1280.5	1274.8	1276.6	1283.2	1274.8
172.5°	1286.0	1280.5	1282.4	1288.9	1280.5
175°	1290.6	1284.1	1286.0	1292.5	1283.2
177.5°	1292.5	1286.0	1286.9	1293.5	1285.1
180°	1287.9	1287.9	1287.9	1287.9	1287.9

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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	12.27	13.34	13.04	14.13	15.10	11.84	12.90	12.61	13.70	14.67
	3H	13.94	14.90	14.73	15.71	16.70	13.47	14.43	14.26	15.23	16.23
	4H	14.54	15.45	15.34	16.26	17.27	14.07	14.97	14.87	15.79	16.79
	6H	14.95	15.79	15.77	16.61	17.63	14.48	15.31	15.29	16.13	17.15
	8H	15.06	15.86	15.89	16.70	17.72	14.59	15.38	15.41	16.22	17.25
	12H	15.12	15.88	15.95	16.71	17.76	14.64	15.39	15.47	16.23	17.28
4H	2H	12.76	13.66	13.56	14.47	15.48	12.41	13.32	13.22	14.13	15.14
	3H	14.64	15.39	15.46	16.24	17.27	14.25	15.00	15.07	15.85	16.87
	4H	15.36	16.05	16.20	16.89	17.95	14.96	15.64	15.79	16.49	17.54
	6H	15.89	16.48	16.74	17.35	18.41	15.48	16.07	16.33	16.94	18.00
	8H	16.04	16.60	16.90	17.46	18.53	15.63	16.19	16.48	17.05	18.12
	12H	16.13	16.63	17.00	17.51	18.59	15.70	16.21	16.58	17.09	18.16
8H	4H	15.58	16.13	16.43	17.00	18.07	15.22	15.77	16.07	16.64	17.71
	6H	16.22	16.68	17.10	17.58	18.65	15.85	16.31	16.73	17.22	18.29
	8H	16.44	16.85	17.33	17.75	18.83	16.07	16.48	16.96	17.38	18.46
	12H	16.58	16.94	17.47	17.83	18.97	16.19	16.55	17.09	17.45	18.59
12H	4H	15.57	16.07	16.44	16.96	18.03	15.22	15.72	16.09	16.60	17.68
	6H	16.25	16.66	17.14	17.56	18.64	15.90	16.30	16.79	17.21	18.29
	8H	16.50	16.86	17.39	17.75	18.89	16.14	16.50	17.04	17.39	18.53