

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: P910178

Luminaire Tested: DFN2DIP-TR4F0-090D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910178
REPORT IS A COMBINATION OF REPORTS P900379 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D040US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

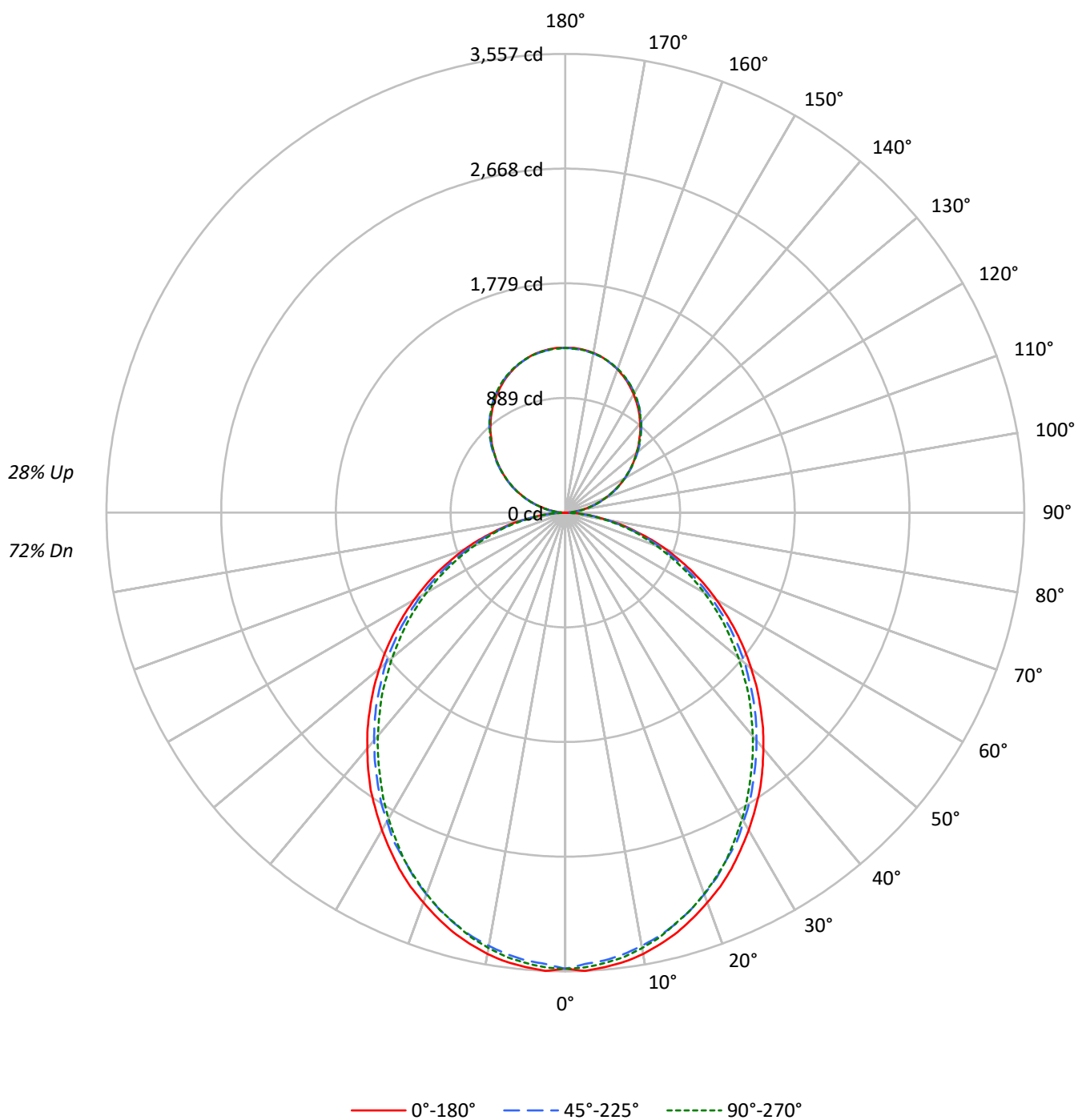
Lumens per Lamp: N/A
Luminaire Lumens: 12572.8 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

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	30	10
RCR																	
0	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76
1	103	98	94	91	97	93	90	86	84	81	79	75	73	71	67	66	64
2	93	86	79	74	88	81	76	71	73	69	65	66	63	59	59	56	54
3	85	75	68	62	81	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	51	58	52	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	44	52	45	41	47	42	38	42	38	35
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	31
7	61	49	40	35	58	47	39	34	42	36	31	39	33	29	35	31	27
8	57	44	36	31	54	42	35	30	39	33	28	35	30	26	32	28	24
9	53	41	33	28	50	39	32	27	36	30	25	33	27	24	30	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2809	2809	2809
5°	2814	2770	2789
10°	2791	2733	2751
15°	2750	2688	2692
20°	2695	2625	2631
25°	2640	2551	2562
30°	2571	2481	2473
35°	2505	2399	2379
40°	2424	2316	2289
45°	2344	2233	2198
50°	2256	2146	2092
55°	2164	2045	1994
60°	2060	1925	1883
65°	1947	1801	1751
70°	1802	1650	1609
75°	1602	1469	1478
80°	1361	1238	1228
85°	985	840	814

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2344 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	2.6
10°-20°	936.5	7.4
20°-30°	1376.3	10.9
30°-40°	1598.5	12.7
40°-50°	1596.5	12.7
50°-60°	1392.1	11.1
60°-70°	1029.1	8.2
70°-80°	582.2	4.6
80°-90°	157.3	1.3
90°-100°	79.1	0.6
100°-110°	251.2	2.0
110°-120°	429.8	3.4
120°-130°	565.3	4.5
130°-140°	634.5	5.0
140°-150°	622.2	4.9
150°-160°	522.0	4.2
160°-170°	346.2	2.8
170°-180°	121.0	1.0
0°-30°	2645.7	21.0
0°-40°	4244.2	33.8
0°-60°	7232.9	57.5
0°-90°	9001.5	71.6
90°-120°	760.1	6.0
90°-150°	2582.2	20.5
90°-180°	3571.0	28.4
0°-180°	12572.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3486	3513	3506	336
15°	3367	3346	3302	3316	3299	948
25°	3047	3020	2962	2969	2962	1402
35°	2629	2595	2540	2520	2503	1642
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1558	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	1	14	38	35	37	12
95°	56	67	69	69	67	63
105°	232	235	237	239	239	245
115°	431	438	436	434	431	427
125°	627	637	634	630	629	561
135°	812	823	826	825	822	627
145°	985	993	999	1000	996	616
155°	1126	1130	1133	1138	1135	519
165°	1226	1224	1224	1232	1227	346
175°	1275	1272	1270	1278	1271	121
180°	1278	1278	1278	1278	1278	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3536.4	3536.4	3536.4	3536.4	3536.4
2.5°	3557.0	3540.1	3502.6	3536.4	3530.0
5°	3536.4	3523.1	3485.7	3512.7	3506.2
7.5°	3512.7	3492.5	3455.0	3482.4	3475.6
10°	3475.6	3451.7	3410.9	3438.0	3427.9
12.5°	3424.3	3404.1	3363.4	3380.2	3373.5
15°	3366.6	3346.4	3302.0	3315.7	3298.7
17.5°	3295.1	3274.9	3230.6	3247.5	3230.6
20°	3216.8	3196.6	3149.0	3159.1	3145.7
22.5°	3138.9	3108.3	3063.8	3063.8	3057.0
25°	3046.9	3019.8	2962.1	2968.6	2962.1
27.5°	2944.8	2920.9	2877.0	2866.9	2849.9
30°	2843.1	2815.6	2764.7	2754.6	2741.0
32.5°	2734.1	2713.9	2659.4	2638.9	2625.1
35°	2628.8	2594.8	2540.3	2519.8	2502.9
37.5°	2509.7	2479.0	2424.5	2400.8	2383.8
40°	2387.3	2360.0	2305.4	2275.1	2261.5
42.5°	2268.3	2240.9	2186.8	2152.5	2132.3
45°	2139.1	2115.4	2064.1	2026.9	2013.3
47.5°	2013.3	1989.4	1934.9	1897.4	1877.2
50°	1880.5	1863.5	1815.8	1768.3	1751.3
52.5°	1751.3	1727.5	1683.4	1646.0	1622.1
55°	1618.9	1598.3	1557.5	1516.8	1499.9
57.5°	1486.1	1469.2	1424.8	1384.0	1370.3
60°	1353.3	1340.0	1292.3	1254.9	1244.8
62.5°	1224.2	1200.3	1166.4	1132.6	1118.8
65°	1091.8	1071.2	1037.2	1006.6	989.7
67.5°	955.7	938.5	908.1	884.3	870.6
70°	829.8	816.1	785.5	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.2	564.6	547.3	527.1	534.0
77.5°	455.7	442.0	435.2	425.1	415.0
80°	340.2	336.6	329.7	319.6	312.9
82.5°	231.3	231.3	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
90°	1.1	13.8	37.8	35.4	36.6
92.5°	23.8	32.3	33.5	34.6	34.6
95°	56.2	67.1	69.0	69.0	67.1
97.5°	93.6	103.6	107.9	107.9	107.9
100°	136.7	145.6	148.7	148.7	147.5
102.5°	182.2	188.7	193.0	194.1	193.0
105°	231.9	234.9	237.2	239.1	239.1
107.5°	281.1	285.8	285.8	286.5	281.1
110°	328.9	335.1	335.1	335.1	332.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	380.5	387.1	385.9	382.8	380.5
115°	431.3	437.6	435.6	434.4	431.3
117.5°	481.8	490.3	484.9	481.8	478.8
120°	532.7	541.1	532.7	532.7	529.2
122.5°	578.9	589.7	584.3	581.2	578.9
125°	627.4	637.0	634.0	630.5	629.3
127.5°	674.8	686.7	682.5	677.8	674.8
130°	719.0	733.0	731.0	728.7	724.5
132.5°	768.7	779.5	780.3	774.9	771.8
135°	811.5	823.4	825.8	824.6	821.5
137.5°	859.3	868.9	870.8	870.0	865.5
140°	901.2	910.9	916.3	916.3	912.0
142.5°	944.4	954.0	957.0	958.3	954.0
145°	985.2	992.9	999.1	1000.3	996.0
147.5°	1021.8	1031.4	1036.0	1037.9	1033.7
150°	1059.6	1066.1	1070.4	1073.8	1070.4
152.5°	1093.1	1099.5	1105.0	1109.2	1105.0
155°	1126.5	1129.6	1133.1	1138.5	1135.0
157.5°	1155.5	1157.7	1159.6	1167.4	1162.0
160°	1181.2	1183.6	1184.7	1191.2	1186.6
162.5°	1205.1	1205.1	1206.3	1213.6	1208.2
165°	1225.6	1224.4	1224.4	1232.0	1226.7
167.5°	1244.1	1240.5	1240.5	1248.3	1242.8
170°	1257.9	1254.8	1253.6	1261.3	1254.8
172.5°	1267.5	1264.5	1263.2	1271.0	1264.5
175°	1275.3	1272.1	1269.8	1277.5	1271.0
177.5°	1279.5	1276.4	1274.0	1280.6	1274.0
180°	1277.5	1277.5	1277.5	1277.5	1277.5

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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	12.65	13.74	13.39	14.51	15.44	12.21	13.31	12.96	14.08	15.00
	3H	14.32	15.31	15.08	16.09	17.04	13.85	14.84	14.61	15.61	16.57
	4H	14.92	15.85	15.70	16.64	17.61	14.45	15.38	15.23	16.16	17.13
	6H	15.33	16.19	16.12	16.99	17.97	14.86	15.72	15.65	16.51	17.49
	8H	15.44	16.26	16.24	17.08	18.06	14.97	15.79	15.77	16.60	17.59
	12H	15.50	16.28	16.31	17.09	18.10	15.02	15.80	15.83	16.61	17.62
4H	2H	13.14	14.06	13.92	14.85	15.82	12.79	13.72	13.57	14.51	15.48
	3H	15.02	15.80	15.82	16.62	17.60	14.63	15.41	15.42	16.23	17.21
	4H	15.75	16.45	16.55	17.27	18.29	15.34	16.05	16.15	16.87	17.88
	6H	16.27	16.89	17.10	17.73	18.75	15.86	16.48	16.69	17.32	18.34
	8H	16.43	17.00	17.26	17.84	18.87	16.02	16.59	16.85	17.43	18.46
	12H	16.51	17.03	17.36	17.89	18.93	16.09	16.61	16.94	17.47	18.50
8H	4H	15.96	16.53	16.79	17.37	18.40	15.60	16.17	16.43	17.01	18.04
	6H	16.60	17.08	17.46	17.96	18.99	16.24	16.71	17.10	17.60	18.63
	8H	16.82	17.25	17.69	18.12	19.17	16.46	16.88	17.32	17.76	18.80
	12H	16.97	17.34	17.84	18.21	19.31	16.58	16.95	17.45	17.82	18.93
12H	4H	15.96	16.47	16.81	17.33	18.37	15.61	16.12	16.46	16.98	18.02
	6H	16.63	17.06	17.50	17.93	18.98	16.28	16.70	17.15	17.58	18.63
	8H	16.89	17.26	17.76	18.13	19.23	16.53	16.90	17.40	17.77	18.87