

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: P909976

Luminaire Tested: DFN2DIP-TR3F0-090D040US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909976
REPORT IS A COMBINATION OF REPORTS P900297 AND P897195
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR3F0-090D040US840-FLLFLL
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

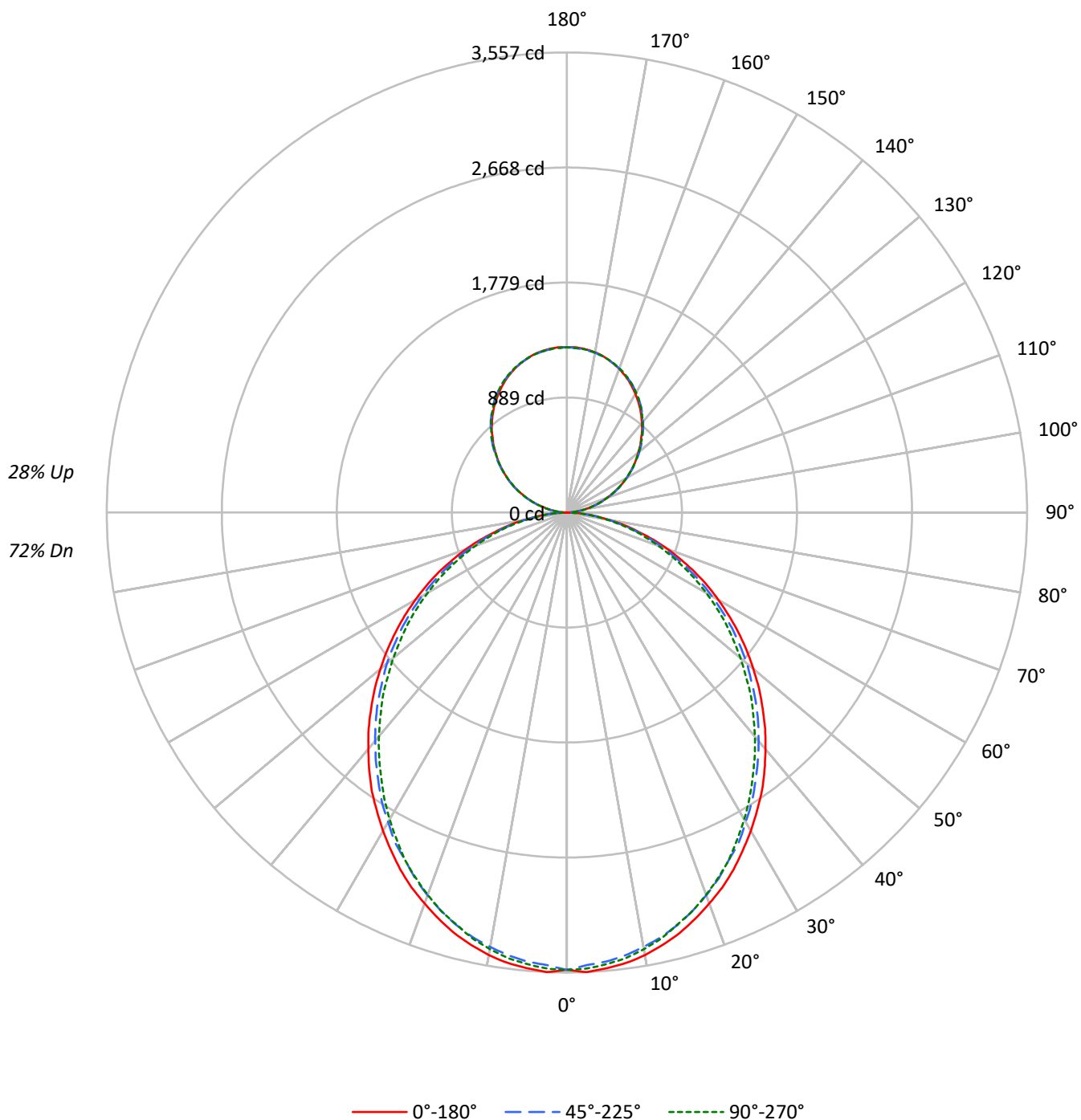
Lumens per Lamp: N/A
Luminaire Lumens: 12572.8 lumens
Efficiency: N/A
Efficacy: 101.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 124.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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°	4407	4407	4407
5°	4411	4342	4372
10°	4373	4280	4310
15°	4307	4205	4214
20°	4217	4104	4117
25°	4128	3983	4004
30°	4017	3870	3862
35°	3912	3738	3712
40°	3783	3604	3569
45°	3654	3470	3423
50°	3513	3329	3253
55°	3365	3166	3097
60°	3197	2972	2918
65°	3015	2771	2706
70°	2781	2527	2477
75°	2459	2233	2262
80°	2070	1858	1860
85°	1462	1224	1201

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3654 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	14.16	15.26	14.91	16.03	16.95	13.73	14.83	14.48	15.60	16.52
	3H	15.83	16.82	16.59	17.59	18.55	15.36	16.35	16.12	17.13	18.08
	4H	16.42	17.35	17.20	18.14	19.11	15.96	16.89	16.73	17.67	18.64
	6H	16.83	17.69	17.62	18.48	19.46	16.36	17.22	17.15	18.01	18.99
	8H	16.94	17.75	17.74	18.57	19.55	16.47	17.29	17.27	18.10	19.08
	12H	16.99	17.77	17.79	18.58	19.59	16.51	17.29	17.32	18.10	19.11
4H	2H	14.65	15.58	15.43	16.37	17.33	14.31	15.24	15.09	16.02	16.99
	3H	16.53	17.30	17.32	18.12	19.11	16.14	16.91	16.93	17.73	18.72
	4H	17.24	17.95	18.05	18.77	19.78	16.84	17.55	17.65	18.37	19.38
	6H	17.76	18.37	18.59	19.22	20.24	17.36	17.97	18.18	18.81	19.83
	8H	17.91	18.48	18.74	19.32	20.36	17.51	18.08	18.33	18.92	19.95
	12H	17.99	18.51	18.84	19.37	20.40	17.58	18.09	18.43	18.95	19.99
8H	4H	17.45	18.02	18.28	18.87	19.90	17.10	17.67	17.93	18.51	19.54
	6H	18.08	18.56	18.94	19.44	20.47	17.72	18.20	18.58	19.08	20.11
	8H	18.30	18.72	19.17	19.60	20.65	17.94	18.36	18.80	19.24	20.28
	12H	18.44	18.81	19.31	19.68	20.78	18.06	18.43	18.93	19.30	20.40
12H	4H	17.45	17.96	18.30	18.83	19.86	17.10	17.61	17.95	18.48	19.51
	6H	18.11	18.53	18.98	19.41	20.46	17.77	18.19	18.63	19.07	20.11
	8H	18.36	18.73	19.23	19.60	20.70	18.01	18.38	18.88	19.25	20.35