

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: P904571

Luminaire Tested: DFN2DIP-TR4F0-040D110US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904571
REPORT IS A COMBINATION OF REPORTS P902015 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D110US830-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

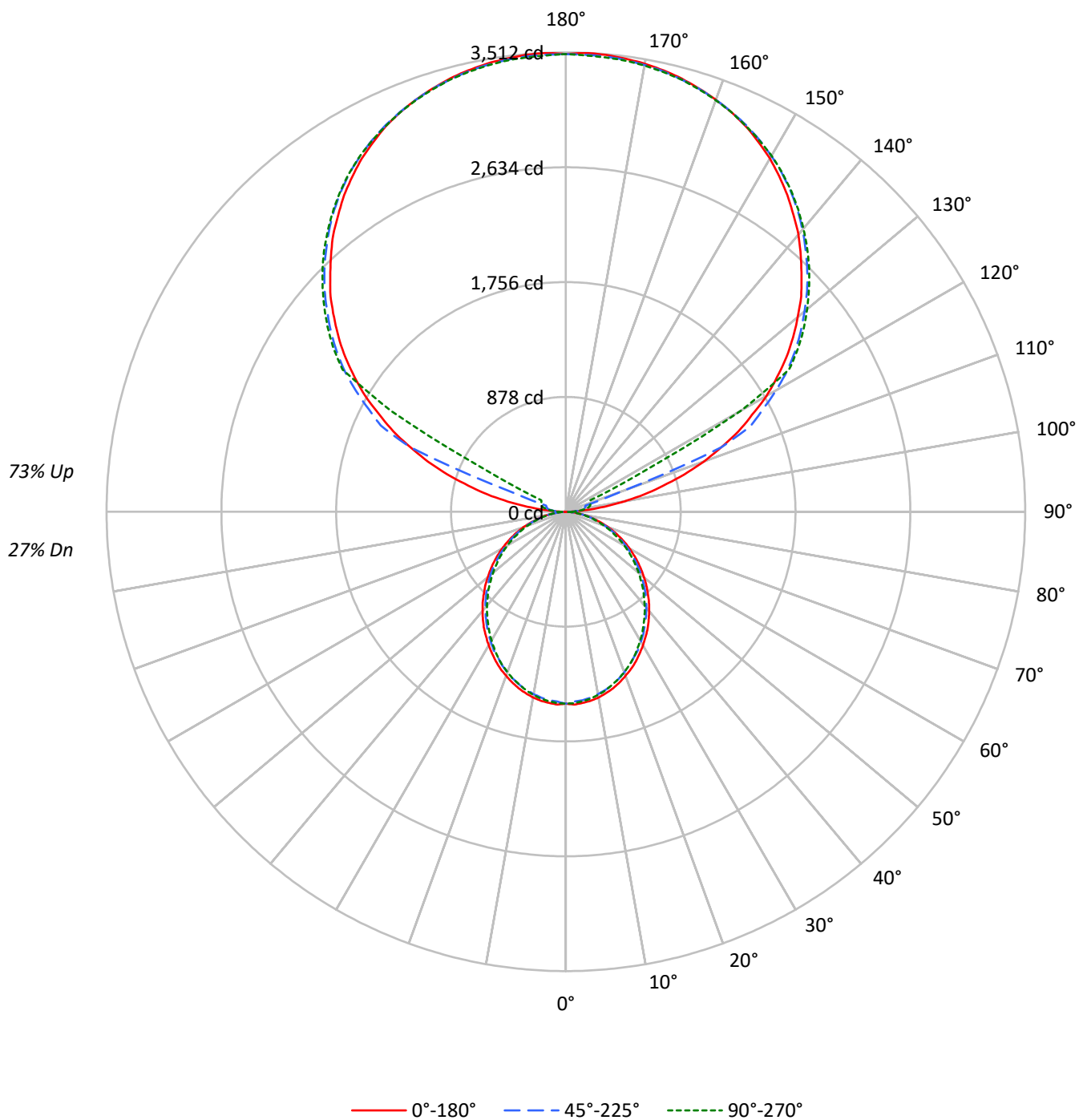
Lumens per Lamp: N/A
Luminaire Lumens: 13996.7 lumens
Efficiency: N/A
Efficacy: 119.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	102	102	102	102	91	91	91	91	70	70	70	52	52	52	35	35	35
1	93	88	85	81	82	79	76	73	62	59	58	45	44	43	31	30	29
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	47	43	40	35	33	30	24	22	21
4	70	60	52	46	62	54	47	42	42	38	34	31	28	26	21	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	19	17	15	14
7	55	43	35	30	49	39	32	27	30	26	22	23	20	17	16	14	12
8	50	39	31	26	45	35	28	24	28	23	19	21	18	15	15	12	11
9	47	35	28	23	42	32	25	21	25	21	17	19	16	14	13	11	10
10	44	32	25	21	39	29	23	19	23	19	15	18	14	12	12	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1165	1165	1165
5°	1167	1149	1157
10°	1158	1134	1141
15°	1141	1115	1117
20°	1118	1089	1092
25°	1095	1058	1063
30°	1066	1029	1026
35°	1039	995	987
40°	1006	961	950
45°	972	926	912
50°	936	890	868
55°	898	848	827
60°	855	799	781
65°	808	747	726
70°	748	684	667
75°	665	609	613
80°	565	514	509
85°	409	348	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1856 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.0
10°-20°	388.5	2.8
20°-30°	570.9	4.1
30°-40°	663.1	4.7
40°-50°	662.3	4.7
50°-60°	577.5	4.1
60°-70°	426.9	3.0
70°-80°	241.5	1.7
80°-90°	69.9	0.5
90°-100°	115.4	0.8
100°-110°	430.1	3.1
110°-120°	1140.7	8.1
120°-130°	1892.0	13.5
130°-140°	2009.7	14.4
140°-150°	1867.8	13.3
150°-160°	1501.7	10.7
160°-170°	967.6	6.9
170°-180°	333.0	2.4
0°-30°	1097.5	7.8
0°-40°	1760.6	12.6
0°-60°	3000.3	21.4
0°-90°	3738.6	26.7
90°-120°	1686.2	12.0
90°-150°	7455.8	53.3
90°-180°	10258.0	73.3
0°-180°	13996.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	30	50	63	68	13
95°	164	81	99	112	109	195
105°	770	846	155	182	192	822
115°	1456	1499	1562	390	208	1433
125°	2058	2091	2140	2157	2165	1836
135°	2547	2588	2610	2636	2631	1968
145°	2955	2952	2995	3013	3000	1848
155°	3254	3231	3261	3276	3256	1499
165°	3428	3413	3421	3438	3421	969
175°	3506	3489	3494	3512	3486	334
180°	3499	3499	3499	3499	3499	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	2.5	30.3	50.5	63.4	68.2
92.5°	63.4	53.3	60.7	65.9	68.2
95°	164.5	80.9	98.6	111.5	108.9
97.5°	296.1	88.7	128.9	136.8	139.2
100°	448.3	101.3	144.3	164.5	169.6
102.5°	615.1	610.3	149.4	177.1	184.9
105°	769.7	845.7	154.6	182.2	192.5
107.5°	949.5	1012.6	159.7	187.3	197.6
110°	1121.7	1174.7	443.2	190.0	199.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1283.8	1329.2	1286.2	194.8	202.6
115°	1455.8	1498.7	1562.3	389.9	207.7
117.5°	1605.2	1655.8	1699.0	1336.7	673.4
120°	1772.4	1810.2	1856.0	1886.3	1544.4
122.5°	1914.0	1954.5	2005.4	2020.4	2023.2
125°	2058.3	2091.4	2139.5	2157.2	2164.7
127.5°	2190.0	2225.4	2263.6	2288.9	2291.3
130°	2314.1	2354.8	2382.4	2410.4	2408.0
132.5°	2440.7	2473.8	2501.5	2524.3	2522.0
135°	2547.2	2587.7	2610.3	2635.9	2630.7
137.5°	2658.4	2688.8	2714.3	2739.6	2732.1
140°	2767.3	2787.7	2815.4	2838.2	2825.6
142.5°	2858.6	2876.4	2909.2	2929.3	2916.7
145°	2954.9	2952.1	2995.1	3012.9	3000.3
147.5°	3038.2	3030.7	3073.6	3086.3	3076.4
150°	3119.3	3101.6	3142.2	3157.2	3144.6
152.5°	3187.6	3167.4	3205.3	3220.7	3202.9
155°	3253.5	3230.8	3261.2	3276.3	3256.1
157.5°	3306.6	3286.5	3309.4	3327.1	3306.6
160°	3352.3	3337.0	3352.3	3367.3	3349.6
162.5°	3392.6	3377.6	3390.2	3408.0	3385.1
165°	3428.1	3413.0	3420.6	3438.3	3420.6
167.5°	3456.0	3440.8	3448.6	3466.3	3443.5
170°	3478.9	3463.6	3468.6	3486.5	3463.6
172.5°	3493.9	3478.9	3484.0	3501.7	3478.9
175°	3506.5	3488.8	3493.9	3511.7	3486.5
177.5°	3511.7	3493.9	3496.6	3514.4	3491.6
180°	3499.1	3499.1	3499.1	3499.1	3499.1

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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	5.11	5.80	6.25	6.92	8.49	4.68	5.37	5.82	6.49	8.06
	3H	6.76	7.37	7.90	8.51	10.09	6.29	6.90	7.43	8.03	9.62
	4H	7.34	7.92	8.49	9.06	10.65	6.87	7.45	8.02	8.58	10.17
	6H	7.73	8.27	8.89	9.40	11.00	7.25	7.79	8.41	8.93	10.53
	8H	7.83	8.34	8.99	9.49	11.08	7.35	7.86	8.52	9.02	10.61
	12H	7.87	8.36	9.04	9.50	11.12	7.39	7.88	8.56	9.02	10.64
4H	2H	5.55	6.14	6.71	7.27	8.86	5.21	5.79	6.37	6.93	8.52
	3H	7.40	7.89	8.57	9.05	10.65	7.01	7.50	8.17	8.66	10.26
	4H	8.11	8.56	9.28	9.71	11.33	7.70	8.15	8.87	9.30	10.92
	6H	8.61	9.00	9.79	10.17	11.78	8.21	8.59	9.38	9.76	11.37
	8H	8.76	9.12	9.93	10.28	11.91	8.35	8.71	9.52	9.87	11.50
	12H	8.82	9.15	10.01	10.32	11.96	8.40	8.73	9.59	9.90	11.53
8H	4H	8.29	8.65	9.46	9.81	11.44	7.93	8.29	9.10	9.45	11.08
	6H	8.92	9.21	10.11	10.42	12.04	8.55	8.85	9.74	10.05	11.68
	8H	9.14	9.39	10.33	10.57	12.22	8.77	9.02	9.96	10.21	11.85
	12H	9.26	9.48	10.46	10.66	12.34	8.87	9.10	10.07	10.28	11.96
12H	4H	8.27	8.59	9.46	9.77	11.40	7.92	8.24	9.10	9.42	11.05
	6H	8.94	9.20	10.14	10.38	12.03	8.59	8.85	9.79	10.03	11.68
	8H	9.18	9.40	10.38	10.58	12.26	8.82	9.05	10.02	10.23	11.90

END OF REPORT