

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: P904575

Luminaire Tested: DFN2DIP-TR4F0-040D120US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904575
REPORT IS A COMBINATION OF REPORTS P902033 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D120US830-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

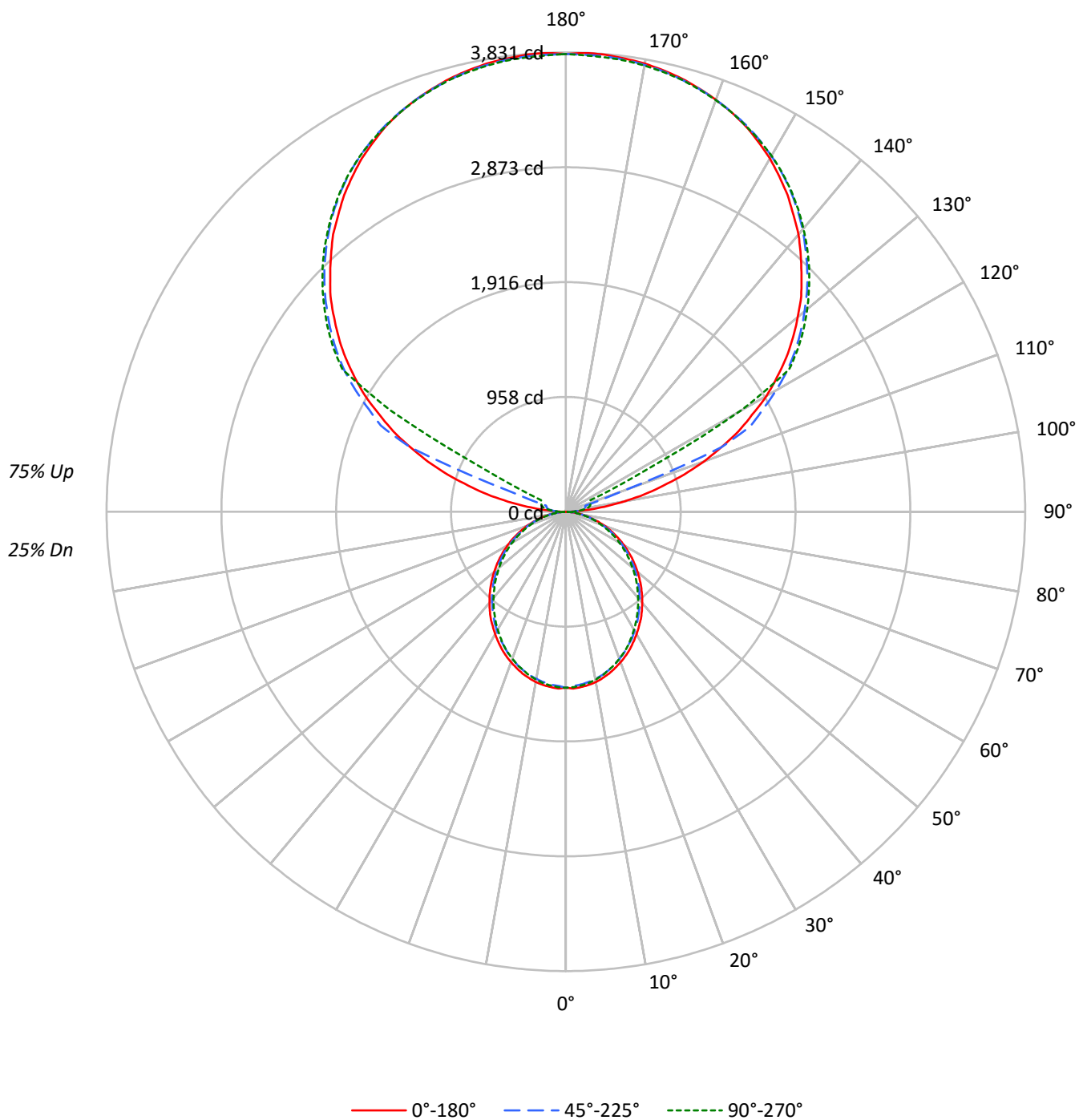
Lumens per Lamp: N/A
Luminaire Lumens: 14929.9 lumens
Efficiency: N/A
Efficacy: 121.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 123.3
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	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8

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: 2028 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	0.9
10°-20°	388.5	2.6
20°-30°	570.9	3.8
30°-40°	663.1	4.4
40°-50°	662.3	4.4
50°-60°	577.5	3.9
60°-70°	426.9	2.9
70°-80°	241.5	1.6
80°-90°	70.5	0.5
90°-100°	125.9	0.8
100°-110°	469.2	3.1
110°-120°	1244.4	8.3
120°-130°	2064.0	13.8
130°-140°	2192.4	14.7
140°-150°	2037.6	13.6
150°-160°	1638.2	11.0
160°-170°	1055.6	7.1
170°-180°	363.3	2.4
0°-30°	1097.5	7.4
0°-40°	1760.6	11.8
0°-60°	3000.3	20.1
0°-90°	3739.2	25.0
90°-120°	1839.5	12.3
90°-150°	8133.6	54.5
90°-180°	11191.0	75.0
0°-180°	14929.9	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°	3	33	55	69	74	14
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2282	2334	2353	2362	2003
135°	2779	2823	2848	2876	2870	2146
145°	3224	3221	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3732	3751	3732	1057
175°	3825	3806	3812	3831	3803	364
180°	3817	3817	3817	3817	3817	

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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°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.7	168.6	198.8	209.9
107.5°	1035.8	1104.7	174.2	204.3	215.5
110°	1223.7	1281.5	483.4	207.3	218.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1450.0	1403.2	212.5	221.0
115°	1588.1	1635.0	1704.2	425.4	226.7
117.5°	1751.1	1806.3	1853.5	1458.2	734.7
120°	1933.5	1974.8	2024.7	2057.9	1684.9
122.5°	2088.0	2132.3	2187.7	2204.1	2207.1
125°	2245.4	2281.5	2334.0	2353.3	2361.5
127.5°	2389.1	2427.8	2469.5	2497.0	2499.6
130°	2524.5	2568.8	2599.0	2629.5	2626.9
132.5°	2662.6	2698.7	2728.8	2753.8	2751.2
135°	2778.7	2823.0	2847.6	2875.5	2869.9
137.5°	2900.1	2933.2	2961.1	2988.6	2980.4
140°	3018.9	3041.1	3071.3	3096.3	3082.5
142.5°	3118.5	3137.9	3173.6	3195.6	3181.8
145°	3223.5	3220.6	3267.4	3286.8	3273.0
147.5°	3314.4	3306.2	3353.1	3366.9	3356.0
150°	3402.9	3383.5	3427.8	3444.2	3430.5
152.5°	3477.3	3455.4	3496.7	3513.4	3494.1
155°	3549.1	3524.5	3557.7	3574.1	3552.2
157.5°	3607.2	3585.2	3610.2	3629.5	3607.2
160°	3657.1	3640.4	3657.1	3673.5	3654.1
162.5°	3701.1	3684.7	3698.4	3717.8	3692.9
165°	3739.7	3723.3	3731.5	3750.9	3731.5
167.5°	3770.3	3753.5	3762.1	3781.4	3756.5
170°	3795.1	3778.5	3784.0	3803.3	3778.5
172.5°	3811.5	3795.1	3800.8	3820.1	3795.1
175°	3825.3	3806.0	3811.5	3831.0	3803.3
177.5°	3831.0	3811.5	3814.6	3833.9	3809.0
180°	3817.2	3817.2	3817.2	3817.2	3817.2

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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	4.86	5.53	6.00	6.66	8.25	4.42	5.10	5.57	6.23	7.82
	3H	6.50	7.11	7.66	8.25	9.85	6.03	6.63	7.18	7.78	9.38
	4H	7.08	7.65	8.24	8.80	10.41	6.61	7.18	7.77	8.32	9.93
	6H	7.47	8.00	8.64	9.14	10.76	7.00	7.52	8.17	8.67	10.29
	8H	7.57	8.07	8.74	9.23	10.84	7.10	7.60	8.27	8.76	10.37
	12H	7.61	8.09	8.79	9.24	10.88	7.13	7.61	8.31	8.76	10.40
4H	2H	5.29	5.87	6.46	7.01	8.62	4.95	5.52	6.12	6.67	8.28
	3H	7.14	7.62	8.32	8.79	10.41	6.75	7.23	7.93	8.40	10.02
	4H	7.85	8.29	9.03	9.45	11.09	7.44	7.89	8.62	9.04	10.68
	6H	8.35	8.73	9.53	9.91	11.54	7.94	8.32	9.13	9.50	11.13
	8H	8.50	8.85	9.68	10.02	11.67	8.09	8.44	9.27	9.61	11.26
	12H	8.56	8.88	9.76	10.06	11.71	8.14	8.46	9.34	9.64	11.29
8H	4H	8.03	8.38	9.21	9.55	11.20	7.67	8.02	8.85	9.19	10.84
	6H	8.65	8.94	9.85	10.16	11.80	8.29	8.58	9.49	9.80	11.44
	8H	8.87	9.13	10.08	10.32	11.98	8.50	8.76	9.71	9.95	11.61
	12H	9.00	9.22	10.20	10.41	12.10	8.61	8.83	9.82	10.02	11.72
12H	4H	8.01	8.33	9.20	9.51	11.16	7.66	7.98	8.85	9.16	10.81
	6H	8.68	8.94	9.89	10.13	11.79	8.33	8.58	9.54	9.77	11.44
	8H	8.92	9.14	10.12	10.33	12.02	8.56	8.78	9.77	9.97	11.66

END OF REPORT