

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: P904801

Luminaire Tested: DFN2DIP-TR4F0-110D050US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904801
REPORT IS A COMBINATION OF REPORTS P901922 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D050US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

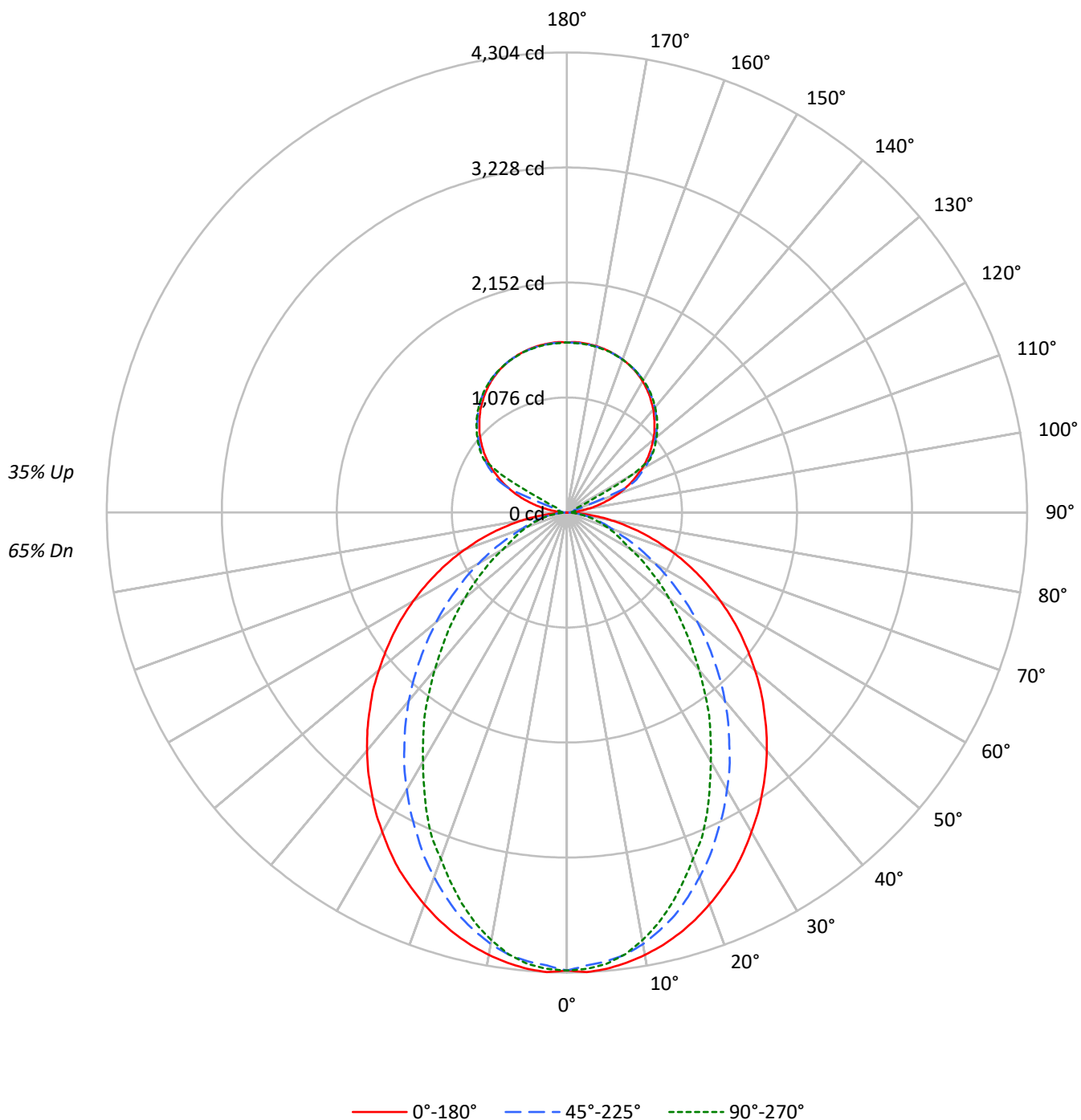
Lumens per Lamp: N/A
Luminaire Lumens: 13478.4 lumens
Efficiency: N/A
Efficacy: 89.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 150.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	111	111	111	111		104	104	104	104		92	92	92		81	81	81		70	70	70
1	102	98	94	91		96	92	89	86		82	79	77		72	70	69		63	62	61
2	93	86	80	75		88	81	76	72		72	68	65		64	61	58		56	54	52
3	86	76	69	63		80	72	66	61		64	59	55		57	53	50		50	48	45
4	79	68	60	54		74	64	57	52		58	52	48		51	47	43		46	42	39
5	72	61	53	47		68	58	51	45		52	46	42		46	42	38		41	38	35
6	67	55	47	41		63	52	45	40		47	41	37		42	37	34		38	34	31
7	62	50	42	37		59	48	40	35		43	37	33		39	34	30		35	31	28
8	58	46	38	33		55	44	36	32		39	34	29		36	31	27		32	28	25
9	54	42	34	29		51	40	33	28		36	31	27		33	28	25		30	26	23
10	51	39	31	27		48	37	30	26		34	28	24		31	26	23		28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3404	3404	3404
5°	3410	3350	3372
10°	3376	3284	3262
15°	3329	3176	3092
20°	3268	3026	2884
25°	3205	2858	2683
30°	3121	2686	2428
35°	3038	2501	2204
40°	2954	2310	1947
45°	2856	2098	1714
50°	2754	1883	1487
55°	2649	1654	1269
60°	2526	1415	1044
65°	2386	1172	940
70°	2215	945	850
75°	2001	832	773
80°	1691	698	670
85°	1178	466	503

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2856 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	401.6	3.0
10°-20°	1102.5	8.2
20°-30°	1547.8	11.5
30°-40°	1687.2	12.5
40°-50°	1550.8	11.5
50°-60°	1217.9	9.0
60°-70°	792.7	5.9
70°-80°	408.1	3.0
80°-90°	107.0	0.8
90°-100°	52.5	0.4
100°-110°	195.5	1.5
110°-120°	518.5	3.8
120°-130°	860.0	6.4
130°-140°	913.5	6.8
140°-150°	849.0	6.3
150°-160°	682.6	5.1
160°-170°	439.8	3.3
170°-180°	151.4	1.1
0°-30°	3051.9	22.6
0°-40°	4739.1	35.2
0°-60°	7507.8	55.7
0°-90°	8815.6	65.4
90°-120°	766.5	5.7
90°-150°	3389.0	25.1
90°-180°	4663.0	34.6
0°-180°	13478.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4285	4285	4285	4285	4285	
5°	4285	4266	4215	4250	4239	406
15°	4076	4033	3901	3828	3789	1148
25°	3700	3575	3319	3161	3102	1701
35°	3188	2990	2649	2404	2319	1995
45°	2606	2346	1939	1663	1570	2013
55°	1981	1679	1260	1028	954	1771
65°	1338	1024	675	543	531	1326
75°	713	442	310	283	279	755
85°	167	85	74	74	74	191
90°	1	14	23	29	31	13
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1469	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4285.1	4285.1	4285.1	4285.1	4285.1
2.5°	4304.4	4285.1	4242.3	4281.4	4273.6
5°	4285.1	4265.8	4215.1	4250.1	4238.6
7.5°	4250.1	4227.0	4172.7	4188.0	4168.6
10°	4203.6	4176.4	4099.1	4087.1	4064.1
12.5°	4145.6	4110.6	4005.7	3982.6	3939.8
15°	4075.6	4032.9	3901.2	3827.6	3788.8
17.5°	3994.2	3932.1	3769.1	3683.9	3621.8
20°	3901.2	3823.4	3629.6	3532.9	3447.3
22.5°	3800.4	3711.1	3486.1	3354.4	3296.4
25°	3699.6	3575.3	3319.4	3160.6	3102.2
27.5°	3579.5	3447.3	3164.3	2982.0	2892.8
30°	3451.5	3303.8	2993.6	2796.1	2691.1
32.5°	3327.3	3148.7	2831.0	2598.2	2501.1
35°	3187.8	2989.8	2648.8	2404.4	2318.8
37.5°	3052.0	2838.5	2478.0	2210.2	2113.6
40°	2908.4	2676.0	2299.5	2024.2	1923.4
42.5°	2761.1	2513.0	2121.4	1834.2	1737.5
45°	2606.0	2346.0	1939.1	1663.4	1570.5
47.5°	2458.7	2183.5	1764.6	1488.9	1403.8
50°	2295.8	2020.5	1593.9	1326.1	1245.0
52.5°	2136.6	1845.7	1431.0	1175.1	1101.4
55°	1981.4	1679.0	1260.2	1027.7	954.1
57.5°	1822.7	1512.4	1109.2	892.0	829.8
60°	1659.7	1349.5	950.0	752.5	690.4
62.5°	1500.9	1190.7	814.3	628.3	597.4
65°	1337.9	1023.6	674.8	543.1	531.1
67.5°	1182.9	868.6	543.1	476.8	465.3
70°	1019.9	717.6	449.7	411.0	395.4
72.5°	864.8	577.7	376.1	345.2	337.3
75°	713.4	441.9	310.2	283.0	279.4
77.5°	562.4	314.0	244.4	228.8	220.9
80°	422.5	225.1	186.0	170.8	170.8
82.5°	294.5	151.4	128.0	120.2	120.2
85°	166.6	85.2	73.6	73.6	73.6
87.5°	62.1	30.8	30.8	27.1	27.1
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.7	277.4	68.0	80.5	84.1
105°	349.9	384.5	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	534.0	201.4	86.3	90.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.2	584.7	88.6	92.1
115°	661.8	681.3	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.6	306.1
120°	805.6	822.8	843.6	857.4	702.0
122.5°	870.0	888.4	911.5	918.4	919.6
125°	935.6	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1029.0	1040.4	1041.5
130°	1051.9	1070.4	1082.9	1095.6	1094.6
132.5°	1109.5	1124.5	1137.0	1147.5	1146.3
135°	1157.8	1176.3	1186.5	1198.2	1195.8
137.5°	1208.3	1222.2	1233.8	1245.3	1241.9
140°	1257.8	1267.2	1279.7	1290.1	1284.4
142.5°	1299.4	1307.5	1322.4	1331.5	1325.8
145°	1343.1	1341.9	1361.4	1369.5	1363.8
147.5°	1381.0	1377.5	1397.1	1402.9	1398.4
150°	1417.9	1409.9	1428.2	1435.1	1429.4
152.5°	1448.9	1439.7	1457.0	1464.0	1455.9
155°	1478.8	1468.6	1482.3	1489.2	1480.1
157.5°	1503.0	1493.8	1504.2	1512.3	1503.0
160°	1523.8	1516.8	1523.8	1530.6	1522.6
162.5°	1542.1	1535.3	1541.0	1549.1	1538.7
165°	1558.2	1551.4	1554.8	1562.8	1554.8
167.5°	1570.9	1564.0	1567.5	1575.6	1565.2
170°	1581.3	1574.3	1576.7	1584.7	1574.3
172.5°	1588.2	1581.3	1583.7	1591.7	1581.3
175°	1593.9	1585.8	1588.2	1596.2	1584.7
177.5°	1596.2	1588.2	1589.4	1597.4	1587.1
180°	1590.4	1590.4	1590.4	1590.4	1590.4

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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	12.73	13.70	13.55	14.54	15.57	8.70	9.68	9.52	10.51	11.55
	3H	14.42	15.29	15.25	16.13	17.20	9.90	10.77	10.73	11.62	12.68
	4H	15.03	15.85	15.88	16.71	17.78	10.36	11.18	11.21	12.03	13.11
	6H	15.46	16.22	16.32	17.08	18.17	10.69	11.44	11.55	12.31	13.39
	8H	15.59	16.31	16.46	17.19	18.28	10.78	11.50	11.65	12.38	13.47
	12H	15.66	16.34	16.53	17.21	18.33	10.83	11.52	11.71	12.39	13.50
4H	2H	12.76	13.58	13.62	14.44	15.51	9.31	10.14	10.17	10.99	12.06
	3H	14.61	15.29	15.47	16.17	17.26	10.68	11.36	11.54	12.25	13.34
	4H	15.30	15.92	16.18	16.81	17.92	11.23	11.85	12.11	12.74	13.85
	6H	15.83	16.36	16.72	17.27	18.39	11.66	12.19	12.55	13.10	14.22
	8H	16.00	16.50	16.90	17.41	18.54	11.79	12.29	12.69	13.19	14.33
	12H	16.11	16.55	17.02	17.48	18.61	11.86	12.31	12.78	13.24	14.37
8H	4H	15.28	15.78	16.18	16.68	17.82	11.52	12.02	12.42	12.92	14.06
	6H	15.85	16.27	16.78	17.21	18.34	12.05	12.46	12.97	13.40	14.54
	8H	16.07	16.44	17.00	17.37	18.52	12.24	12.61	13.17	13.54	14.69
	12H	16.21	16.54	17.15	17.46	18.67	12.37	12.69	13.30	13.62	14.82
12H	4H	15.24	15.69	16.15	16.61	17.75	11.53	11.98	12.45	12.90	14.04
	6H	15.83	16.19	16.76	17.13	18.28	12.10	12.46	13.03	13.40	14.55
	8H	16.06	16.38	16.99	17.31	18.51	12.32	12.64	13.25	13.57	14.77