

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: P904835

Luminaire Tested: DFN2DIP-TR4F0-120D050US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904835
REPORT IS A COMBINATION OF REPORTS P901923 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D050US830-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

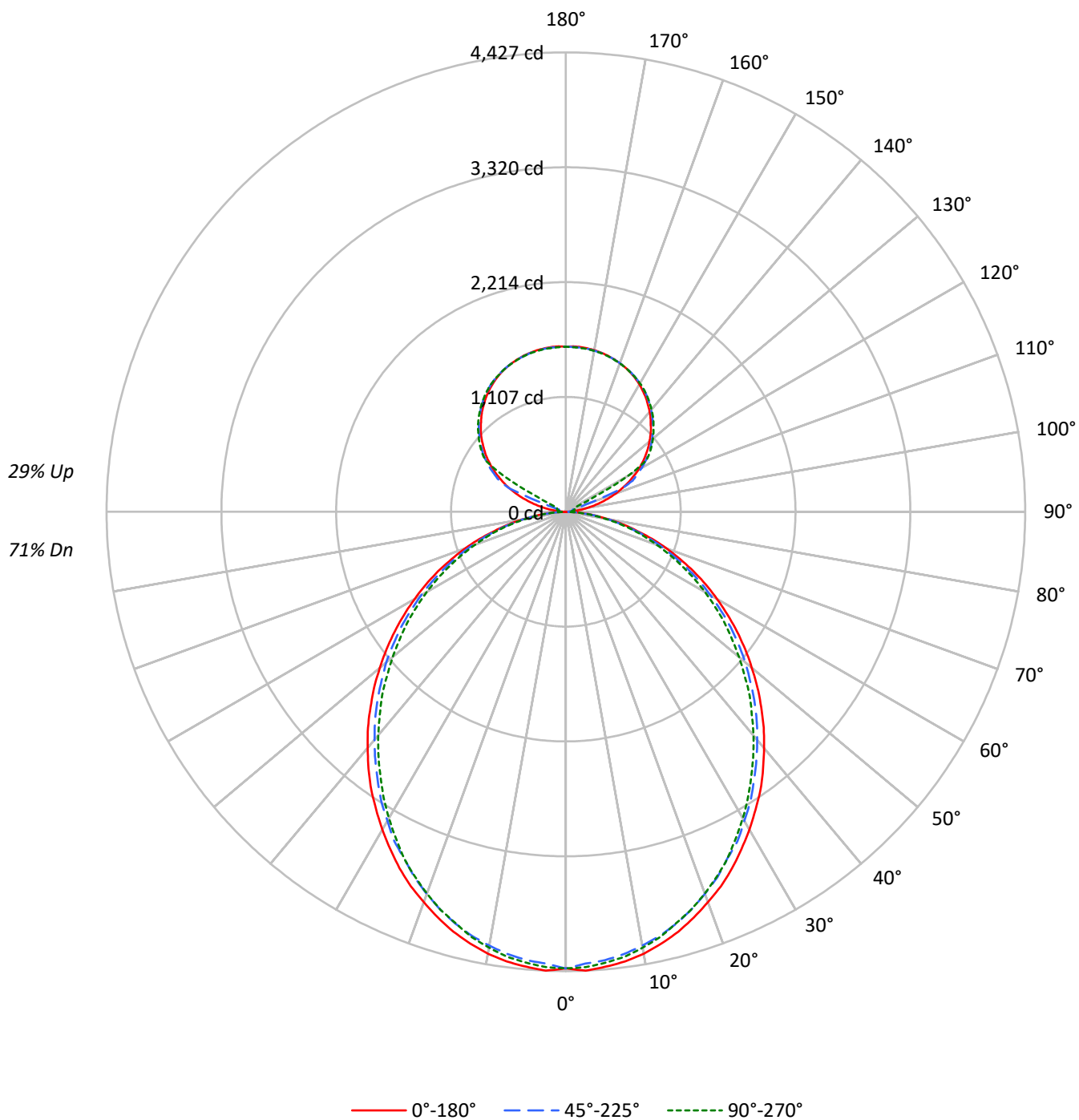
Lumens per Lamp: N/A
Luminaire Lumens: 15863.0 lumens
Efficiency: N/A
Efficacy: 97.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3502	3448	3471
10°	3474	3401	3424
15°	3423	3345	3350
20°	3354	3267	3275
25°	3285	3174	3188
30°	3199	3088	3077
35°	3117	2985	2960
40°	3017	2882	2849
45°	2917	2779	2735
50°	2808	2670	2603
55°	2693	2545	2482
60°	2564	2396	2343
65°	2423	2241	2179
70°	2243	2053	2002
75°	1994	1828	1839
80°	1694	1541	1528
85°	1225	1046	1013

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2917 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.2	2.6
10°-20°	1165.5	7.3
20°-30°	1712.8	10.8
30°-40°	1989.3	12.5
40°-50°	1986.8	12.5
50°-60°	1732.4	10.9
60°-70°	1280.6	8.1
70°-80°	724.6	4.6
80°-90°	194.0	1.2
90°-100°	52.5	0.3
100°-110°	195.5	1.2
110°-120°	518.5	3.3
120°-130°	860.0	5.4
130°-140°	913.5	5.8
140°-150°	849.0	5.4
150°-160°	682.6	4.3
160°-170°	439.8	2.8
170°-180°	151.4	1.0
0°-30°	3292.4	20.8
0°-40°	5281.7	33.3
0°-60°	9000.9	56.7
0°-90°	11200.2	70.6
90°-120°	766.5	4.8
90°-150°	3389.0	21.4
90°-180°	4663.0	29.4
0°-180°	15863.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4401	4401	4401	4401	4401	
5°	4401	4384	4338	4371	4363	418
15°	4190	4164	4109	4126	4105	1180
25°	3792	3758	3686	3694	3686	1745
35°	3271	3229	3161	3136	3115	2043
45°	2662	2632	2569	2522	2505	2054
55°	2015	1989	1938	1888	1866	1801
65°	1359	1333	1291	1253	1232	1343
75°	711	703	681	656	664	759
85°	173	169	165	152	148	193
90°	1	14	23	29	31	15
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°	4401.0	4401.0	4401.0	4401.0	4401.0
2.5°	4426.6	4405.4	4358.8	4401.0	4392.9
5°	4401.0	4384.3	4337.7	4371.3	4363.2
7.5°	4371.3	4346.2	4299.5	4333.6	4325.1
10°	4325.1	4295.4	4244.7	4278.4	4265.9
12.5°	4261.3	4236.2	4185.5	4206.6	4198.0
15°	4189.5	4164.3	4109.1	4126.2	4105.1
17.5°	4100.6	4075.5	4020.2	4041.3	4020.2
20°	4003.2	3978.0	3918.8	3931.3	3914.8
22.5°	3906.2	3868.0	3812.8	3812.8	3804.3
25°	3791.7	3758.0	3686.2	3694.3	3686.2
27.5°	3664.6	3635.0	3580.2	3567.6	3546.6
30°	3538.0	3503.9	3440.6	3428.0	3411.0
32.5°	3402.4	3377.3	3309.5	3283.9	3266.9
35°	3271.3	3229.1	3161.3	3135.7	3114.6
37.5°	3123.1	3085.0	3017.2	2987.6	2966.5
40°	2971.0	2936.9	2869.0	2831.3	2814.2
42.5°	2822.8	2788.7	2721.3	2678.7	2653.5
45°	2662.0	2632.4	2568.6	2522.4	2505.4
47.5°	2505.4	2475.7	2407.9	2361.3	2336.1
50°	2340.1	2319.0	2259.7	2200.5	2179.3
52.5°	2179.3	2149.8	2095.0	2048.2	2018.6
55°	2014.6	1989.0	1938.2	1887.5	1866.4
57.5°	1849.4	1828.2	1773.0	1722.3	1705.2
60°	1684.1	1667.5	1608.3	1561.6	1549.0
62.5°	1523.4	1493.7	1451.6	1409.4	1392.3
65°	1358.7	1333.0	1290.8	1252.6	1231.6
67.5°	1189.4	1167.8	1130.1	1100.5	1083.5
70°	1032.6	1015.6	977.4	947.8	931.2
72.5°	871.9	854.9	833.8	804.2	791.5
75°	710.8	702.7	681.1	656.0	664.5
77.5°	567.0	550.0	541.5	528.9	516.3
80°	423.4	418.9	410.4	397.8	389.3
82.5°	287.8	287.8	283.8	266.7	266.7
85°	173.3	169.3	165.2	152.2	148.2
87.5°	76.3	67.8	59.3	46.7	42.2
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	13.33	14.41	14.09	15.19	16.14	12.90	13.98	13.66	14.76	15.71
	3H	15.01	15.98	15.78	16.77	17.74	14.53	15.51	15.31	16.30	17.27
	4H	15.60	16.52	16.39	17.32	18.31	15.13	16.05	15.92	16.85	17.83
	6H	16.02	16.86	16.82	17.67	18.67	15.54	16.39	16.34	17.20	18.19
	8H	16.13	16.93	16.94	17.76	18.76	15.65	16.46	16.46	17.29	18.29
	12H	16.18	16.95	17.00	17.77	18.80	15.70	16.47	16.52	17.29	18.32
4H	2H	13.82	14.74	14.61	15.54	16.52	13.47	14.39	14.27	15.19	16.18
	3H	15.70	16.47	16.51	17.30	18.31	15.31	16.08	16.12	16.91	17.91
	4H	16.43	17.13	17.25	17.96	18.99	16.02	16.72	16.84	17.55	18.58
	6H	16.96	17.56	17.79	18.42	19.45	16.55	17.15	17.38	18.01	19.04
	8H	17.11	17.67	17.95	18.53	19.57	16.70	17.26	17.54	18.11	19.16
	12H	17.19	17.70	18.05	18.57	19.63	16.77	17.28	17.63	18.15	19.21
8H	4H	16.64	17.21	17.48	18.06	19.11	16.28	16.85	17.12	17.70	18.75
	6H	17.28	17.75	18.15	18.64	19.69	16.92	17.39	17.79	18.28	19.33
	8H	17.51	17.92	18.38	18.81	19.87	17.14	17.55	18.02	18.44	19.50
	12H	17.65	18.01	18.53	18.89	20.01	17.26	17.63	18.14	18.51	19.63
12H	4H	16.64	17.15	17.50	18.02	19.07	16.29	16.80	17.15	17.67	18.72
	6H	17.31	17.73	18.19	18.62	19.68	16.96	17.38	17.84	18.27	19.33
	8H	17.57	17.93	18.45	18.81	19.93	17.21	17.58	18.09	18.46	19.57