

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: P910026

Luminaire Tested: DFN2DIP-TR4F0-040D110US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910026
REPORT IS A COMBINATION OF REPORTS P900495 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D110US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

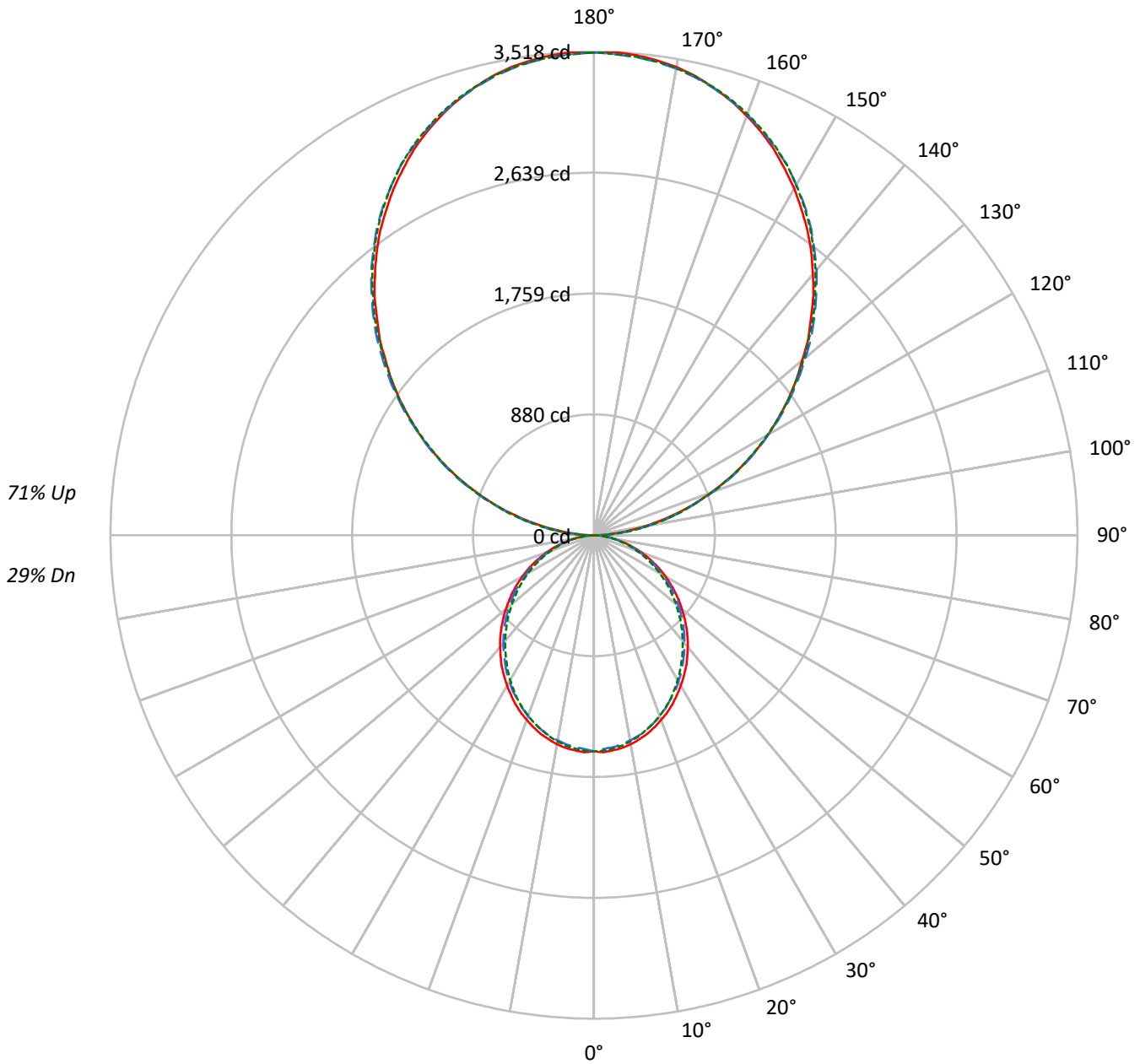
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13830.1 lumens
Efficiency: N/A
Efficacy: 118.5 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 (A_{in}): 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



— 0°-180° - - 45°-225° ···· 90°-270°



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	29				29
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31	24				24
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26	20				20
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22	17				17
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19	15				15
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17	13				13
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15	11				11
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13	10				10
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12	9				9
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10	8				8
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9	7				7

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1249	1249	1249
5°	1251	1231	1240
10°	1241	1215	1223
15°	1222	1195	1196
20°	1198	1167	1170
25°	1173	1134	1138
30°	1142	1103	1099
35°	1113	1066	1057
40°	1078	1029	1017
45°	1042	992	977
50°	1003	954	930
55°	962	909	886
60°	916	856	837
65°	865	800	778
70°	801	733	715
75°	712	653	657
80°	605	550	546
85°	438	373	362

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2738 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.1
10°-20°	416.2	3.0
20°-30°	611.7	4.4
30°-40°	710.5	5.1
40°-50°	709.6	5.1
50°-60°	618.7	4.5
60°-70°	457.4	3.3
70°-80°	258.8	1.9
80°-90°	78.3	0.6
90°-100°	217.4	1.6
100°-110°	690.8	5.0
110°-120°	1182.1	8.5
120°-130°	1554.6	11.2
130°-140°	1745.0	12.6
140°-150°	1711.2	12.4
150°-160°	1435.4	10.4
160°-170°	951.9	6.9
170°-180°	332.7	2.4
0°-30°	1175.9	8.5
0°-40°	1886.3	13.6
0°-60°	3214.6	23.2
0°-90°	4009.0	29.0
90°-120°	2090.2	15.1
90°-150°	7101.0	51.3
90°-180°	9821.0	71.0
0°-180°	13830.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	3	38	104	98	101	14
95°	155	184	190	190	184	172
105°	638	646	652	658	658	673
115°	1186	1203	1198	1195	1186	1173
125°	1725	1752	1743	1734	1731	1542
135°	2232	2264	2271	2268	2259	1725
145°	2709	2730	2747	2751	2739	1693
155°	3098	3106	3116	3131	3121	1426
165°	3370	3367	3367	3388	3373	951
175°	3507	3498	3492	3513	3495	333
180°	3513	3513	3513	3513	3513	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	3.1	38.2	103.8	97.5	100.6
92.5°	65.6	89.0	92.1	95.3	95.3
95°	154.6	184.3	189.6	189.6	184.3
97.5°	257.4	284.9	296.6	296.6	296.6
100°	376.0	400.3	408.8	408.8	405.7
102.5°	501.0	519.0	530.7	533.8	530.7
105°	637.6	646.1	652.5	657.7	657.7
107.5°	773.2	785.9	785.9	788.0	773.2
110°	904.5	921.5	921.5	921.5	913.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1046.4	1064.4	1061.3	1052.8	1046.4
115°	1186.3	1203.2	1197.9	1194.8	1186.3
117.5°	1325.0	1348.3	1333.4	1325.0	1316.6
120°	1464.8	1488.1	1464.8	1464.8	1455.3
122.5°	1592.0	1621.5	1606.7	1598.2	1592.0
125°	1725.4	1751.8	1743.3	1733.8	1730.6
127.5°	1855.6	1888.4	1876.8	1864.1	1855.6
130°	1977.4	2015.6	2010.2	2003.9	1992.3
132.5°	2114.1	2143.7	2145.9	2131.0	2122.5
135°	2231.6	2264.4	2270.8	2267.7	2259.2
137.5°	2363.0	2389.4	2394.7	2392.6	2380.0
140°	2478.4	2504.9	2519.7	2519.7	2508.1
142.5°	2597.1	2623.5	2632.0	2635.1	2623.5
145°	2709.3	2730.5	2747.4	2750.6	2739.0
147.5°	2810.0	2836.4	2849.1	2854.4	2842.8
150°	2913.8	2931.7	2943.4	2952.9	2943.4
152.5°	3005.9	3023.8	3038.7	3050.4	3038.7
155°	3098.1	3106.4	3116.0	3130.9	3121.3
157.5°	3177.4	3183.8	3189.1	3210.3	3195.4
160°	3248.4	3254.8	3257.9	3276.0	3263.3
162.5°	3314.1	3314.1	3317.3	3337.4	3322.6
165°	3370.2	3367.0	3367.0	3388.2	3373.4
167.5°	3421.0	3411.5	3411.5	3432.7	3417.9
170°	3459.2	3450.7	3447.6	3468.7	3450.7
172.5°	3485.7	3477.2	3474.0	3495.2	3477.2
175°	3506.9	3498.4	3492.0	3513.2	3495.2
177.5°	3518.5	3510.0	3503.6	3521.7	3503.6
180°	3513.2	3513.2	3513.2	3513.2	3513.2



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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	5.68	6.38	6.80	7.49	9.04	5.25	5.95	6.37	7.06	8.60
	3H	7.33	7.96	8.46	9.08	10.64	6.86	7.48	7.98	8.60	10.16
	4H	7.91	8.50	9.05	9.63	11.19	7.44	8.03	8.57	9.15	10.72
	6H	8.30	8.85	9.44	9.97	11.55	7.82	8.37	8.97	9.50	11.07
	8H	8.40	8.92	9.55	10.06	11.63	7.92	8.45	9.07	9.59	11.15
	12H	8.44	8.94	9.59	10.07	11.66	7.96	8.46	9.11	9.59	11.18
4H	2H	6.12	6.72	7.27	7.84	9.40	5.78	6.37	6.92	7.49	9.06
	3H	7.97	8.47	9.12	9.62	11.19	7.58	8.08	8.73	9.22	10.80
	4H	8.68	9.14	9.83	10.27	11.87	8.28	8.73	9.43	9.87	11.46
	6H	9.19	9.58	10.34	10.74	12.32	8.78	9.17	9.94	10.33	11.91
	8H	9.33	9.70	10.49	10.85	12.45	8.92	9.29	10.08	10.44	12.04
	12H	9.40	9.73	10.57	10.89	12.50	8.98	9.31	10.15	10.47	12.08
8H	4H	8.86	9.23	10.02	10.38	11.98	8.50	8.87	9.66	10.02	11.62
	6H	9.49	9.79	10.67	10.98	12.58	9.13	9.43	10.30	10.62	12.22
	8H	9.71	9.97	10.89	11.14	12.76	9.34	9.60	10.52	10.77	12.39
	12H	9.83	10.06	11.02	11.23	12.89	9.45	9.68	10.63	10.85	12.50
12H	4H	8.84	9.17	10.02	10.34	11.94	8.49	8.82	9.66	9.98	11.59
	6H	9.52	9.78	10.70	10.95	12.57	9.17	9.43	10.35	10.60	12.22
	8H	9.75	9.98	10.94	11.15	12.80	9.39	9.63	10.58	10.79	12.45