

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: P910022

Luminaire Tested: DFN2DIP-TR4F0-040D100US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910022
REPORT IS A COMBINATION OF REPORTS P900477 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D100US840-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

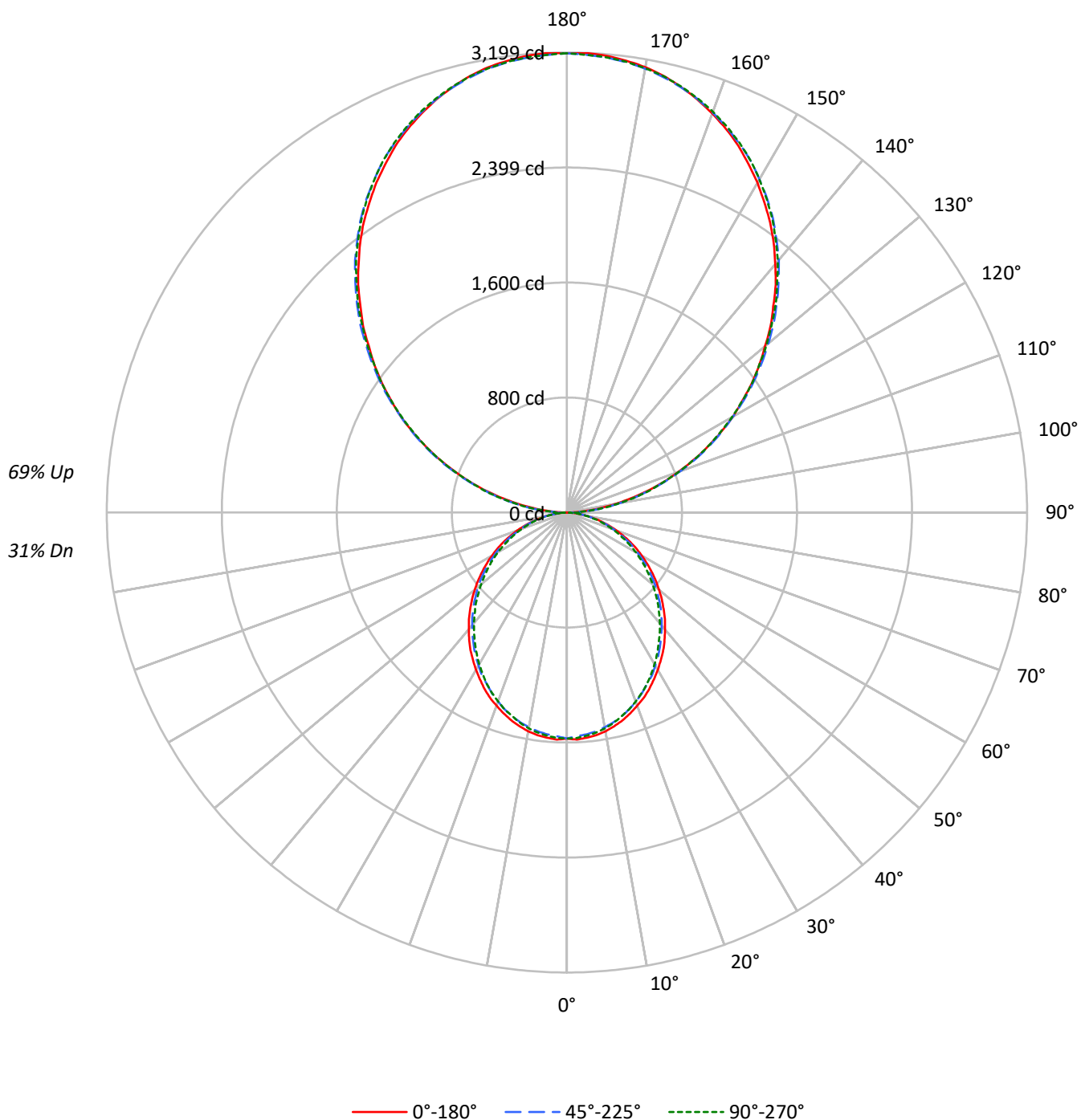
Lumens per Lamp: N/A
Luminaire Lumens: 12936.4 lumens
Efficiency: N/A
Efficacy: 119.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.3
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
RCR																	
0	103	103	103	103	92	92	92	92	73	73	73		55	55	55		39
1	94	89	86	82	84	80	77	74	64	61	60		48	47	46		34
2	85	78	72	67	76	70	65	61	56	52	49		42	40	38		30
3	78	68	61	56	69	62	56	51	49	45	41		37	35	32		27
4	71	60	53	47	63	55	48	43	44	39	35		33	30	28		24
5	65	54	46	40	58	49	42	37	39	34	30		30	26	24		21
6	60	48	40	35	54	44	37	32	35	30	26		27	23	21		19
7	55	43	36	30	49	39	33	28	32	27	23		24	21	18		18
8	51	39	32	27	46	36	29	24	29	24	20		22	19	16		16
9	47	36	28	24	43	32	26	22	26	21	18		20	17	15		15
10	44	33	26	21	40	30	24	19	24	19	16		19	15	13		14

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: 2490 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.1
10°-20°	416.2	3.2
20°-30°	611.7	4.7
30°-40°	710.5	5.5
40°-50°	709.6	5.5
50°-60°	618.7	4.8
60°-70°	457.4	3.5
70°-80°	258.8	2.0
80°-90°	77.4	0.6
90°-100°	197.6	1.5
100°-110°	627.9	4.9
110°-120°	1074.6	8.3
120°-130°	1413.3	10.9
130°-140°	1586.4	12.3
140°-150°	1555.6	12.0
150°-160°	1304.9	10.1
160°-170°	865.4	6.7
170°-180°	302.5	2.3
0°-30°	1175.9	9.1
0°-40°	1886.3	14.6
0°-60°	3214.6	24.8
0°-90°	4008.1	31.0
90°-120°	1900.2	14.7
90°-150°	6455.4	49.9
90°-180°	8928.0	69.0
0°-180°	12936.4	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	35	94	89	92	13
95°	141	168	172	172	168	156
105°	580	587	593	598	598	612
115°	1078	1094	1089	1086	1078	1067
125°	1568	1593	1585	1576	1573	1402
135°	2029	2059	2064	2062	2054	1568
145°	2463	2482	2498	2500	2490	1539
155°	2816	2824	2833	2846	2838	1296
165°	3064	3061	3061	3080	3067	864
175°	3188	3180	3175	3194	3177	303
180°	3194	3194	3194	3194	3194	

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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°	2.9	34.6	94.3	88.6	91.5
92.5°	59.7	80.9	83.8	86.6	86.6
95°	140.6	167.5	172.4	172.4	167.5
97.5°	234.0	259.0	269.6	269.6	269.6
100°	341.8	364.0	371.6	371.6	368.8
102.5°	455.4	471.8	482.4	485.2	482.4
105°	579.7	587.3	593.1	597.9	597.9
107.5°	702.9	714.5	714.5	716.4	702.9
110°	822.3	837.7	837.7	837.7	830.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	951.3	967.7	964.8	957.0	951.3
115°	1078.4	1093.8	1089.0	1086.1	1078.4
117.5°	1204.6	1225.8	1212.2	1204.6	1196.8
120°	1331.6	1352.8	1331.6	1331.6	1323.0
122.5°	1447.1	1474.1	1460.7	1453.0	1447.1
125°	1568.5	1592.6	1584.9	1576.2	1573.4
127.5°	1687.0	1716.8	1706.2	1694.7	1687.0
130°	1797.7	1832.3	1827.6	1821.7	1811.2
132.5°	1921.9	1948.8	1950.8	1937.3	1929.6
135°	2028.7	2058.6	2064.4	2061.5	2053.8
137.5°	2148.2	2172.2	2177.1	2175.1	2163.5
140°	2253.1	2277.1	2290.7	2290.7	2280.1
142.5°	2361.0	2385.0	2392.7	2395.6	2385.0
145°	2463.0	2482.2	2497.7	2500.5	2489.9
147.5°	2554.5	2578.6	2590.1	2595.0	2584.3
150°	2648.9	2665.2	2675.8	2684.4	2675.8
152.5°	2732.6	2749.0	2762.5	2773.1	2762.5
155°	2816.4	2824.1	2832.8	2846.2	2837.5
157.5°	2888.6	2894.4	2899.2	2918.4	2905.0
160°	2953.1	2958.9	2961.7	2978.1	2966.6
162.5°	3012.8	3012.8	3015.7	3033.9	3020.5
165°	3063.8	3060.9	3060.9	3080.2	3066.8
167.5°	3110.1	3101.4	3101.4	3120.7	3107.2
170°	3144.7	3137.0	3134.1	3153.4	3137.0
172.5°	3168.8	3161.1	3158.2	3177.4	3161.1
175°	3188.0	3180.4	3174.6	3193.8	3177.4
177.5°	3198.6	3191.0	3185.1	3201.5	3185.1
180°	3193.8	3193.8	3193.8	3193.8	3193.8

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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	5.95	6.67	7.06	7.77	9.29	5.52	6.24	6.63	7.34	8.86
	3H	7.60	8.24	8.72	9.35	10.89	7.13	7.77	8.24	8.88	10.41
	4H	8.18	8.79	9.31	9.90	11.44	7.71	8.32	8.83	9.43	10.97
	6H	8.57	9.13	9.71	10.25	11.80	8.10	8.66	9.23	9.77	11.32
	8H	8.68	9.21	9.81	10.33	11.88	8.20	8.73	9.34	9.86	11.41
	12H	8.72	9.22	9.86	10.34	11.91	8.24	8.74	9.38	9.86	11.43
4H	2H	6.40	7.00	7.53	8.11	9.66	6.05	6.66	7.18	7.77	9.31
	3H	8.25	8.76	9.39	9.89	11.45	7.86	8.36	8.99	9.50	11.05
	4H	8.96	9.42	10.10	10.55	12.12	8.55	9.02	9.69	10.14	11.72
	6H	9.46	9.86	10.61	11.01	12.58	9.05	9.45	10.20	10.60	12.17
	8H	9.61	9.98	10.76	11.12	12.70	9.20	9.57	10.34	10.71	12.29
	12H	9.68	10.01	10.84	11.17	12.75	9.25	9.59	10.42	10.74	12.33
8H	4H	9.14	9.51	10.29	10.65	12.24	8.78	9.15	9.93	10.29	11.88
	6H	9.77	10.07	10.93	11.26	12.83	9.40	9.71	10.57	10.89	12.47
	8H	9.99	10.25	11.16	11.42	13.01	9.62	9.89	10.79	11.05	12.65
	12H	10.11	10.35	11.29	11.51	13.14	9.73	9.96	10.90	11.12	12.75
12H	4H	9.12	9.46	10.28	10.61	12.20	8.77	9.11	9.93	10.26	11.84
	6H	9.80	10.06	10.97	11.23	12.82	9.44	9.71	10.62	10.87	12.47
	8H	10.03	10.27	11.21	11.43	13.06	9.67	9.91	10.85	11.07	12.70