

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: P916852

Luminaire Tested: DFN2DIP-PN4F0-050D120US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916852
REPORT IS A COMBINATION OF REPORTS P899755 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D120US930-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

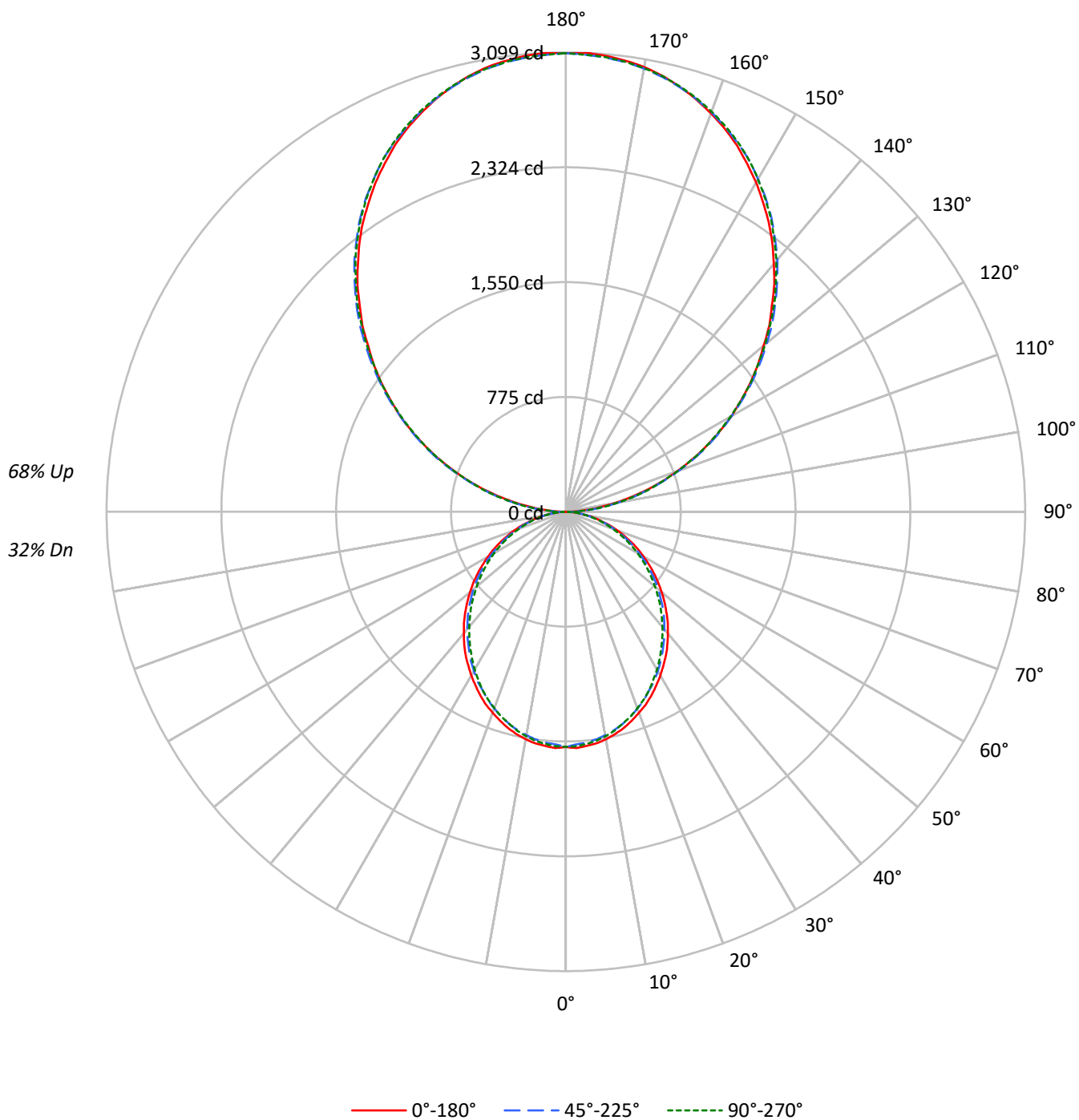
Lumens per Lamp: N/A
Luminaire Lumens: 12694.2 lumens
Efficiency: N/A
Efficacy: 86.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 147.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	39	39	39
1	94	89	86	82	84	81	77	75	64	62	60	49	47	46	35	34	33
2	85	78	72	67	76	70	65	61	56	53	50	43	41	39	31	29	28
3	78	69	62	56	70	62	56	51	49	45	42	38	35	33	27	25	24
4	71	61	53	47	64	55	48	43	44	39	35	34	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	20	18
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	16
7	55	43	36	30	50	39	33	28	32	27	23	25	21	19	18	16	14
8	51	39	32	27	46	36	29	25	29	24	20	23	19	16	17	14	12
9	48	36	29	24	43	33	26	22	26	22	18	21	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	20	16	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1158	1158	1158
5°	1160	1142	1150
10°	1150	1127	1134
15°	1133	1108	1110
20°	1111	1083	1086
25°	1088	1052	1057
30°	1059	1023	1021
35°	1032	990	982
40°	999	956	945
45°	966	922	908
50°	930	886	865
55°	892	845	825
60°	849	796	779
65°	802	745	725
70°	743	683	667
75°	660	609	614
80°	561	514	512
85°	406	351	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2422 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.3	1.2
10°-20°	420.0	3.3
20°-30°	617.3	4.9
30°-40°	717.0	5.6
40°-50°	716.1	5.6
50°-60°	624.4	4.9
60°-70°	461.6	3.6
70°-80°	261.1	2.1
80°-90°	77.7	0.6
90°-100°	191.5	1.5
100°-110°	608.3	4.8
110°-120°	1041.1	8.2
120°-130°	1369.2	10.8
130°-140°	1536.9	12.1
140°-150°	1507.1	11.9
150°-160°	1264.2	10.0
160°-170°	838.4	6.6
170°-180°	293.0	2.3
0°-30°	1186.6	9.3
0°-40°	1903.6	15.0
0°-60°	3244.1	25.6
0°-90°	4044.5	31.9
90°-120°	1840.9	14.5
90°-150°	6254.0	49.3
90°-180°	8650.0	68.1
0°-180°	12694.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1586	1586	1586	1586	1586	
5°	1586	1580	1563	1576	1573	151
15°	1510	1501	1481	1487	1480	425
25°	1367	1354	1328	1332	1328	629
35°	1179	1164	1139	1130	1123	736
45°	959	949	926	909	903	740
55°	726	717	698	680	673	649
65°	490	480	465	452	444	484
75°	256	253	246	236	240	273
85°	62	61	60	55	53	70
90°	3	34	91	86	89	12
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1586.2	1586.2	1586.2	1586.2	1586.2
2.5°	1595.4	1587.8	1571.0	1586.2	1583.3
5°	1586.2	1580.2	1563.3	1575.5	1572.6
7.5°	1575.5	1566.4	1549.6	1561.9	1558.9
10°	1558.9	1548.2	1529.9	1542.0	1537.5
12.5°	1535.9	1526.8	1508.5	1516.1	1513.0
15°	1509.9	1500.9	1481.0	1487.2	1479.5
17.5°	1477.9	1468.8	1448.9	1456.5	1448.9
20°	1442.8	1433.8	1412.4	1416.9	1411.0
22.5°	1407.9	1394.1	1374.2	1374.2	1371.1
25°	1366.6	1354.5	1328.5	1331.5	1328.5
27.5°	1320.8	1310.1	1290.4	1285.8	1278.2
30°	1275.1	1262.9	1240.1	1235.5	1229.4
32.5°	1226.3	1217.2	1192.8	1183.6	1177.5
35°	1179.0	1163.8	1139.4	1130.2	1122.6
37.5°	1125.6	1111.9	1087.4	1076.8	1069.2
40°	1070.8	1058.5	1034.0	1020.4	1014.3
42.5°	1017.4	1005.1	980.8	965.4	956.3
45°	959.4	948.8	925.8	909.1	902.9
47.5°	902.9	892.3	867.9	851.0	842.0
50°	843.4	835.8	814.5	793.1	785.5
52.5°	785.5	774.8	755.0	738.3	727.6
55°	726.1	716.9	698.5	680.3	672.7
57.5°	666.5	658.9	639.0	620.8	614.6
60°	607.0	601.0	579.7	562.8	558.3
62.5°	549.1	538.4	523.2	507.9	501.8
65°	489.7	480.5	465.2	451.5	443.8
67.5°	428.7	420.9	407.3	396.6	390.4
70°	372.2	366.1	352.3	341.6	335.7
72.5°	314.3	308.1	300.5	289.8	285.3
75°	256.2	253.2	245.5	236.4	239.5
77.5°	204.4	198.2	195.2	190.6	186.1
80°	152.6	151.0	147.9	143.4	140.3
82.5°	103.7	103.7	102.2	96.1	96.1
85°	62.5	61.0	59.5	54.9	53.4
87.5°	27.5	24.5	21.4	16.8	15.2
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1

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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	5.82	6.54	6.92	7.63	9.14	5.38	6.10	6.48	7.19	8.70
	3H	7.47	8.12	8.58	9.22	10.75	6.99	7.63	8.09	8.74	10.26
	4H	8.05	8.67	9.17	9.77	11.30	7.57	8.18	8.68	9.28	10.82
	6H	8.45	9.01	9.58	10.12	11.66	7.96	8.52	9.08	9.63	11.17
	8H	8.55	9.09	9.68	10.21	11.75	8.06	8.59	9.19	9.72	11.25
	12H	8.60	9.10	9.73	10.22	11.78	8.10	8.60	9.23	9.72	11.28
4H	2H	6.26	6.87	7.39	7.98	9.51	5.91	6.52	7.04	7.63	9.16
	3H	8.12	8.63	9.25	9.76	11.30	7.72	8.23	8.85	9.36	10.90
	4H	8.83	9.30	9.96	10.42	11.98	8.41	8.88	9.55	10.00	11.57
	6H	9.34	9.74	10.48	10.89	12.44	8.91	9.32	10.06	10.46	12.02
	8H	9.49	9.86	10.63	11.00	12.57	9.06	9.43	10.20	10.57	12.14
	12H	9.55	9.90	10.71	11.04	12.62	9.11	9.46	10.27	10.60	12.18
8H	4H	9.01	9.39	10.16	10.53	12.10	8.64	9.02	9.78	10.15	11.73
	6H	9.64	9.95	10.80	11.13	12.70	9.27	9.58	10.43	10.75	12.32
	8H	9.86	10.14	11.03	11.29	12.88	9.48	9.75	10.65	10.91	12.50
	12H	9.99	10.23	11.16	11.38	13.01	9.59	9.83	10.76	10.98	12.60
12H	4H	8.99	9.33	10.15	10.48	12.06	8.63	8.97	9.79	10.12	11.70
	6H	9.67	9.94	10.84	11.10	12.69	9.31	9.58	10.47	10.74	12.32
	8H	9.91	10.15	11.08	11.30	12.92	9.54	9.78	10.71	10.93	12.55