

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: P915951

Luminaire Tested: DFN2DIP-4P4F0-040D060US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915951
REPORT IS A COMBINATION OF REPORTS P900637 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D060US930-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

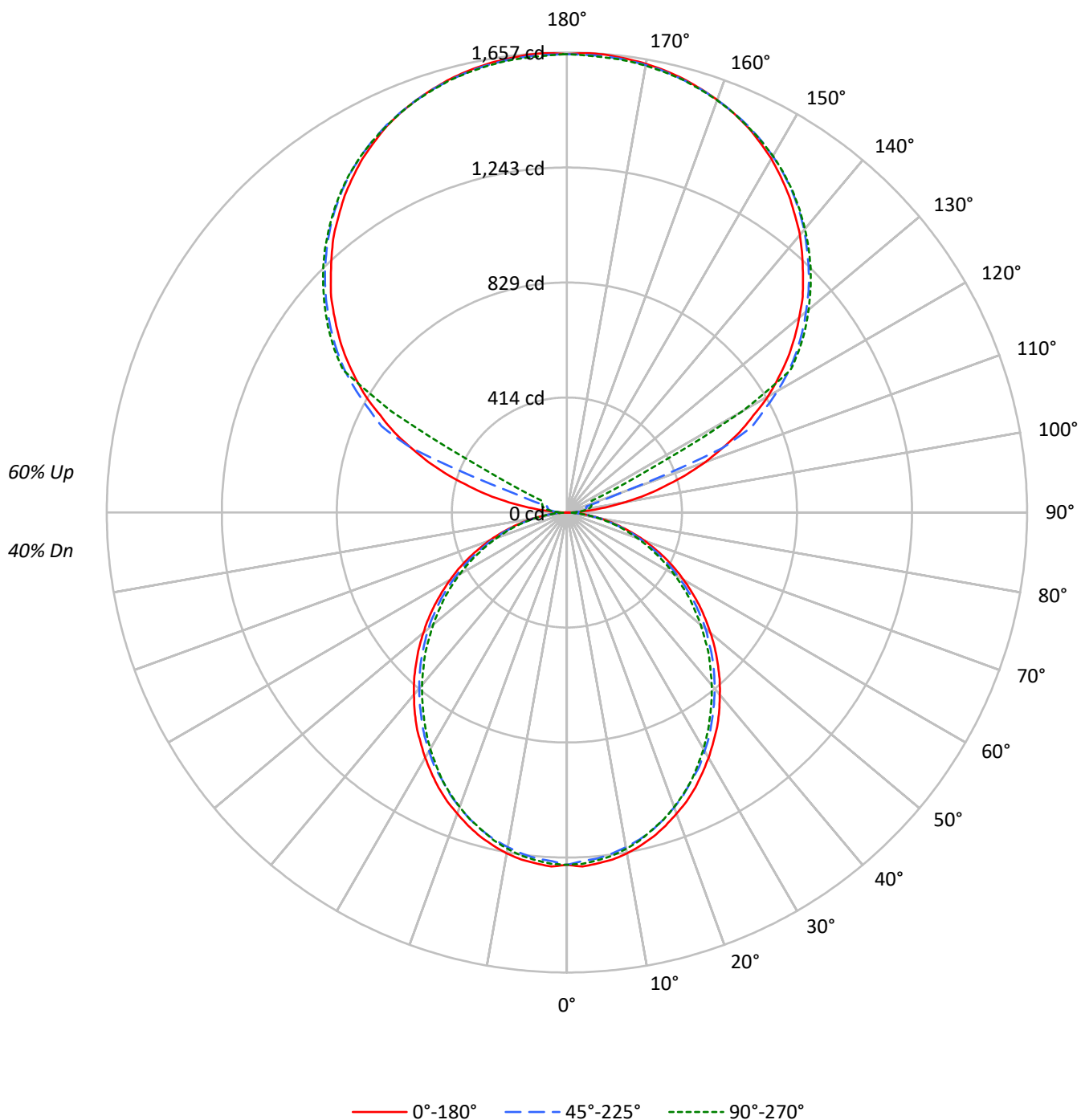
Lumens per Lamp: N/A
Luminaire Lumens: 8071.4 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 89.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	50	30	10
RCR																				
0	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47			40
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40			34
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33			28
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28			24
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24			21
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21			18
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19			16
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17			14
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15			12
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13			11
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12			10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	823	823	823
5°	825	812	818
10°	818	801	807
15°	806	788	790
20°	790	770	772
25°	774	749	752
30°	753	729	726
35°	734	705	699
40°	711	681	673
45°	687	657	647
50°	662	632	616
55°	635	602	588
60°	604	568	556
65°	571	532	518
70°	529	488	477
75°	471	436	440
80°	400	369	368
85°	291	254	248

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 851 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.4	1.5
10°-20°	336.0	4.2
20°-30°	493.8	6.1
30°-40°	573.6	7.1
40°-50°	572.9	7.1
50°-60°	499.5	6.2
60°-70°	369.3	4.6
70°-80°	208.9	2.6
80°-90°	58.0	0.7
90°-100°	54.4	0.7
100°-110°	202.9	2.5
110°-120°	538.2	6.7
120°-130°	892.7	11.1
130°-140°	948.2	11.7
140°-150°	881.3	10.9
150°-160°	708.5	8.8
160°-170°	456.5	5.7
170°-180°	157.1	1.9
0°-30°	949.3	11.8
0°-40°	1522.9	18.9
0°-60°	2595.3	32.2
0°-90°	3231.5	40.0
90°-120°	795.6	9.9
90°-150°	3517.8	43.6
90°-180°	4840.0	60.0
0°-180°	8071.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1269	1269	1269	1269	1269	
5°	1269	1264	1251	1260	1258	120
15°	1208	1201	1185	1190	1184	340
25°	1093	1084	1063	1065	1063	503
35°	943	931	912	904	898	589
45°	768	759	741	727	722	592
55°	581	574	559	544	538	519
65°	392	384	372	361	355	387
75°	205	203	196	189	192	219
85°	50	49	48	44	43	56
90°	1	14	24	30	32	7
95°	78	38	47	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	987	1009	1018	1021	866
135°	1202	1221	1232	1244	1241	928
145°	1394	1393	1413	1422	1416	872
155°	1535	1524	1539	1546	1536	707
165°	1618	1610	1614	1622	1614	457
175°	1654	1646	1648	1657	1645	157
180°	1651	1651	1651	1651	1651	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1268.9	1268.9	1268.9	1268.9	1268.9
2.5°	1276.3	1270.2	1256.8	1268.9	1266.6
5°	1268.9	1264.1	1250.7	1260.4	1258.1
7.5°	1260.4	1253.1	1239.7	1249.5	1247.1
10°	1247.1	1238.5	1223.9	1233.6	1230.0
12.5°	1228.7	1221.4	1206.8	1212.9	1210.4
15°	1207.9	1200.7	1184.8	1189.7	1183.6
17.5°	1182.3	1175.1	1159.2	1165.2	1159.2
20°	1154.2	1147.0	1129.9	1133.5	1128.8
22.5°	1126.3	1115.2	1099.3	1099.3	1096.9
25°	1093.2	1083.5	1062.8	1065.2	1062.8
27.5°	1056.6	1048.1	1032.3	1028.7	1022.6
30°	1020.1	1010.3	992.1	988.4	983.5
32.5°	981.0	973.8	954.2	946.9	941.9
35°	943.2	931.1	911.5	904.2	898.1
37.5°	900.5	889.5	869.9	861.4	855.3
40°	856.6	846.8	827.2	816.4	811.5
42.5°	813.9	804.0	784.6	772.3	765.1
45°	767.5	759.0	740.6	727.3	722.4
47.5°	722.4	713.8	694.3	680.9	673.6
50°	674.7	668.6	651.6	634.5	628.4
52.5°	628.4	619.9	604.1	590.6	582.0
55°	580.9	573.5	558.9	544.2	538.2
57.5°	533.2	527.2	511.2	496.6	491.7
60°	485.6	480.8	463.7	450.3	446.6
62.5°	439.3	430.7	418.6	406.3	401.5
65°	391.8	384.3	372.2	361.2	355.1
67.5°	342.9	336.7	325.9	317.3	312.4
70°	297.7	292.9	281.8	273.3	268.5
72.5°	251.4	246.5	240.4	231.9	228.2
75°	205.0	202.6	196.4	189.1	191.6
77.5°	163.5	158.6	156.1	152.5	148.9
80°	122.1	120.7	118.3	114.7	112.3
82.5°	83.0	83.0	81.9	76.9	76.9
85°	50.0	48.8	47.6	43.9	42.7
87.5°	22.0	19.6	17.1	13.5	12.1
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.2	46.6	52.7	51.4
97.5°	139.7	41.8	60.8	64.6	65.7
100°	211.5	47.8	68.1	77.6	80.0
102.5°	290.2	288.0	70.5	83.6	87.2
105°	363.1	399.0	72.9	85.9	90.8
107.5°	448.0	477.8	75.3	88.4	93.2
110°	529.3	554.2	209.1	89.7	94.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.7	627.1	606.8	91.9	95.6
115°	686.9	707.2	737.1	184.0	98.0
117.5°	757.3	781.2	801.6	630.7	317.7
120°	836.3	854.1	875.7	890.0	728.7
122.5°	903.0	922.2	946.2	953.2	954.6
125°	971.2	986.8	1009.4	1017.8	1021.3
127.5°	1033.3	1050.0	1068.0	1079.9	1081.1
130°	1091.8	1111.0	1124.1	1137.3	1136.1
132.5°	1151.6	1167.2	1180.2	1191.0	1189.8
135°	1201.8	1221.0	1231.6	1243.7	1241.2
137.5°	1254.3	1268.6	1280.7	1292.6	1289.1
140°	1305.6	1315.3	1328.4	1339.1	1333.2
142.5°	1348.7	1357.1	1372.6	1382.1	1376.1
145°	1394.2	1392.9	1413.2	1421.6	1415.6
147.5°	1433.5	1429.9	1450.2	1456.1	1451.5
150°	1471.8	1463.4	1482.5	1489.6	1483.7
152.5°	1504.0	1494.4	1512.3	1519.6	1511.2
155°	1535.0	1524.4	1538.7	1545.8	1536.3
157.5°	1560.2	1550.6	1561.4	1569.8	1560.2
160°	1581.7	1574.4	1581.7	1588.8	1580.5
162.5°	1600.7	1593.6	1599.5	1607.9	1597.2
165°	1617.5	1610.4	1613.9	1622.3	1613.9
167.5°	1630.6	1623.4	1627.1	1635.5	1624.6
170°	1641.4	1634.2	1636.6	1644.9	1634.2
172.5°	1648.5	1641.4	1643.8	1652.2	1641.4
175°	1654.5	1646.1	1648.5	1656.8	1644.9
177.5°	1656.8	1648.5	1649.8	1658.2	1647.4
180°	1650.9	1650.9	1650.9	1650.9	1650.9

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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	5.62	6.40	6.66	7.44	8.85	5.17	5.95	6.21	7.00	8.40
	3H	7.28	7.98	8.33	9.03	10.45	6.79	7.48	7.84	8.54	9.96
	4H	7.87	8.53	8.93	9.58	11.01	7.37	8.03	8.43	9.09	10.52
	6H	8.27	8.87	9.33	9.93	11.38	7.76	8.37	8.83	9.43	10.88
	8H	8.37	8.95	9.44	10.02	11.46	7.87	8.45	8.94	9.52	10.96
	12H	8.42	8.97	9.50	10.04	11.50	7.91	8.46	8.99	9.53	10.99
4H	2H	6.07	6.73	7.14	7.79	9.22	5.72	6.38	6.78	7.43	8.86
	3H	7.93	8.49	9.01	9.57	11.02	7.53	8.08	8.60	9.16	10.61
	4H	8.65	9.16	9.73	10.23	11.70	8.23	8.73	9.31	9.81	11.27
	6H	9.17	9.60	10.25	10.70	12.16	8.73	9.17	9.82	10.26	11.73
	8H	9.32	9.72	10.41	10.81	12.29	8.88	9.28	9.97	10.37	11.85
	12H	9.39	9.76	10.49	10.86	12.34	8.94	9.31	10.04	10.41	11.89
8H	4H	8.84	9.25	9.93	10.34	11.81	8.46	8.87	9.55	9.96	11.44
	6H	9.47	9.81	10.59	10.94	12.42	9.09	9.43	10.20	10.56	12.03
	8H	9.70	9.99	10.82	11.11	12.60	9.31	9.60	10.42	10.71	12.21
	12H	9.83	10.09	10.95	11.20	12.73	9.42	9.68	10.54	10.79	12.32
12H	4H	8.82	9.19	9.93	10.29	11.77	8.45	8.82	9.56	9.92	11.41
	6H	9.50	9.80	10.62	10.91	12.41	9.13	9.43	10.25	10.54	12.03
	8H	9.75	10.01	10.87	11.11	12.65	9.37	9.63	10.49	10.73	12.27