

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: P916025

Luminaire Tested: DFN2DIP-4P4F0-070D060US930-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916025
REPORT IS A COMBINATION OF REPORTS P900644 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D060US930-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

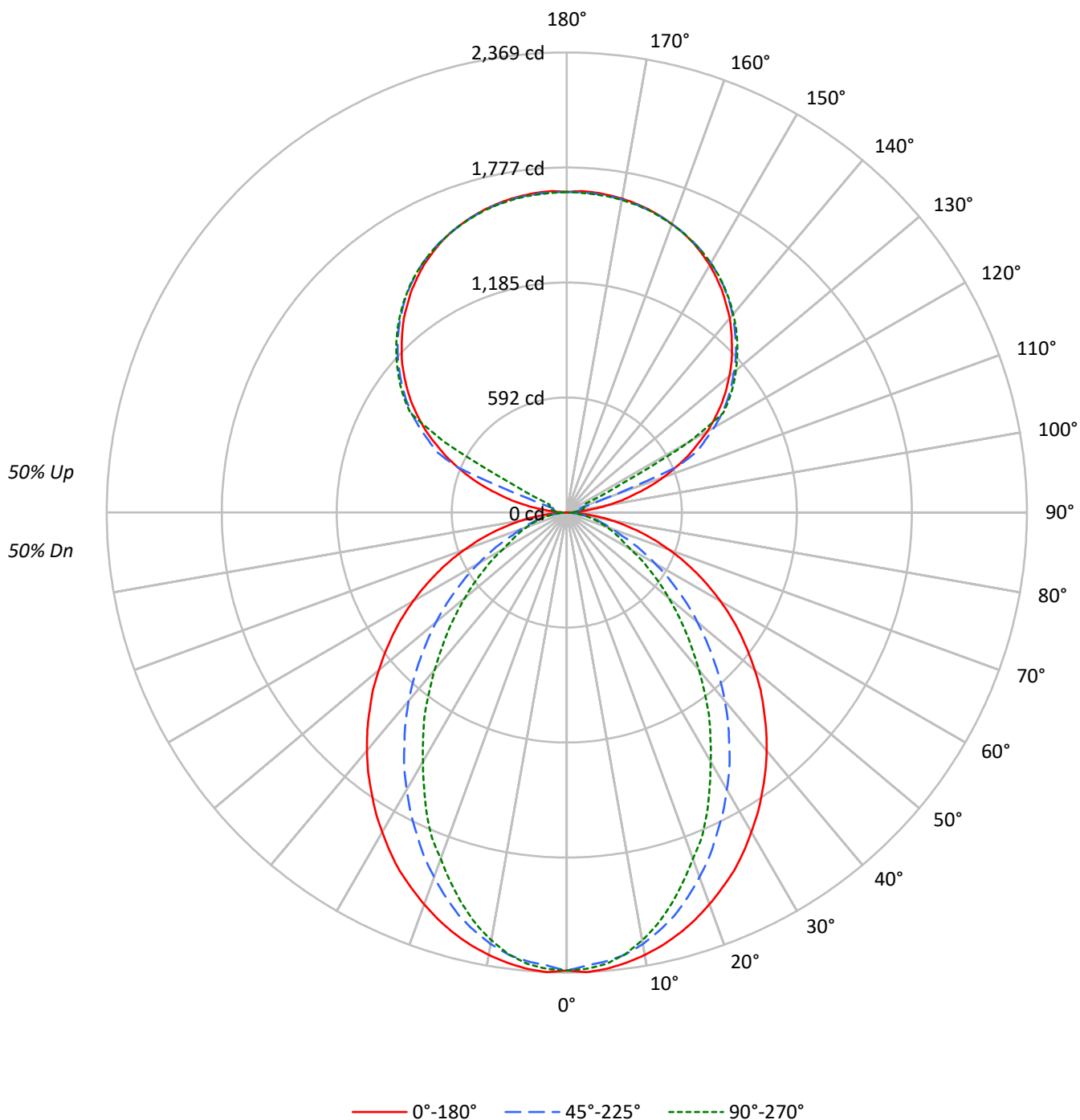
Lumens per Lamp: N/A
Luminaire Lumens: 9693.9 lumens
Efficiency: N/A
Efficacy: 77.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	94	90	87	91	87	84	81	74	72	69	62	60	59	50	49	48
2	90	83	77	72	83	77	72	67	65	62	58	55	52	50	45	43	41
3	82	73	66	60	76	68	62	57	58	53	50	49	45	43	40	38	36
4	76	65	57	52	70	60	54	49	52	47	43	44	40	37	36	34	31
5	70	58	50	45	64	54	47	42	47	41	37	40	35	32	33	30	28
6	64	52	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	59	47	40	34	55	44	37	32	38	33	29	33	29	25	28	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	52	40	32	27	48	37	30	26	32	27	23	28	24	21	24	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1530	1530	1530
5°	1533	1506	1516
10°	1518	1477	1467
15°	1497	1429	1392
20°	1469	1362	1298
25°	1441	1287	1208
30°	1403	1210	1094
35°	1366	1127	994
40°	1328	1042	878
45°	1285	946	774
50°	1239	850	672
55°	1192	748	574
60°	1137	640	473
65°	1074	531	426
70°	998	429	387
75°	902	379	353
80°	763	320	308
85°	533	216	235

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1285 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.1	2.3
10°-20°	606.9	6.3
20°-30°	852.0	8.8
30°-40°	928.8	9.6
40°-50°	853.6	8.8
50°-60°	670.4	6.9
60°-70°	436.4	4.5
70°-80°	224.6	2.3
80°-90°	60.2	0.6
90°-100°	54.4	0.6
100°-110°	202.9	2.1
110°-120°	538.2	5.6
120°-130°	892.7	9.2
130°-140°	948.2	9.8
140°-150°	881.3	9.1
150°-160°	708.5	7.3
160°-170°	456.5	4.7
170°-180°	157.1	1.6
0°-30°	1679.9	17.3
0°-40°	2608.7	26.9
0°-60°	4132.7	42.6
0°-90°	4853.9	50.1
90°-120°	795.6	8.2
90°-150°	3517.8	36.3
90°-180°	4840.0	49.9
0°-180°	9693.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2359	2359	2359	2359	2359	
5°	2359	2348	2320	2340	2333	224
15°	2244	2220	2147	2107	2086	632
25°	2036	1968	1827	1740	1708	937
35°	1755	1646	1458	1324	1276	1098
45°	1434	1291	1067	916	864	1108
55°	1091	924	694	566	525	975
65°	736	564	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	1	14	24	30	32	9
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°	2358.7	2358.7	2358.7	2358.7	2358.7
2.5°	2369.3	2358.7	2335.2	2356.7	2352.4
5°	2358.7	2348.1	2320.3	2339.5	2333.1
7.5°	2339.5	2326.8	2296.9	2305.3	2294.7
10°	2313.9	2299.0	2256.3	2249.8	2237.1
12.5°	2281.9	2262.7	2205.0	2192.3	2168.7
15°	2243.5	2219.9	2147.4	2106.9	2085.6
17.5°	2198.6	2164.5	2074.8	2027.8	1993.6
20°	2147.4	2104.6	1998.0	1944.7	1897.6
22.5°	2092.0	2042.8	1918.9	1846.4	1814.5
25°	2036.5	1968.0	1827.2	1739.8	1707.6
27.5°	1970.3	1897.6	1741.8	1641.5	1592.4
30°	1899.9	1818.6	1647.8	1539.1	1481.4
32.5°	1831.5	1733.2	1558.4	1430.2	1376.7
35°	1754.7	1645.8	1458.1	1323.6	1276.4
37.5°	1680.0	1562.4	1364.1	1216.6	1163.4
40°	1600.9	1473.0	1265.8	1114.3	1058.7
42.5°	1519.9	1383.3	1167.7	1009.6	956.4
45°	1434.5	1291.4	1067.4	915.7	864.5
47.5°	1353.4	1201.9	971.3	819.6	772.7
50°	1263.7	1112.2	877.3	729.9	685.3
52.5°	1176.1	1015.9	787.7	646.8	606.3
55°	1090.7	924.2	693.7	565.7	525.2
57.5°	1003.3	832.5	610.6	491.0	456.8
60°	913.6	742.8	522.9	414.3	380.0
62.5°	826.1	655.4	448.2	345.8	328.8
65°	736.5	563.5	371.4	299.0	292.4
67.5°	651.1	478.1	299.0	262.4	256.2
70°	561.4	394.9	247.5	226.2	217.6
72.5°	476.1	318.0	207.0	190.0	185.7
75°	392.7	243.2	170.7	155.8	153.8
77.5°	309.6	172.8	134.5	125.9	121.6
80°	232.6	123.8	102.4	94.0	94.0
82.5°	162.2	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.2	17.0	17.0	14.9	14.9
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	8.65	9.48	9.61	10.46	11.73	4.61	5.44	5.58	6.42	7.69
	3H	10.33	11.08	11.31	12.06	13.35	5.80	6.54	6.78	7.53	8.82
	4H	10.95	11.65	11.93	12.64	13.94	6.25	6.96	7.24	7.94	9.25
	6H	11.37	12.02	12.37	13.01	14.33	6.58	7.22	7.57	8.21	9.53
	8H	11.50	12.12	12.51	13.12	14.44	6.67	7.28	7.67	8.29	9.60
	12H	11.57	12.15	12.58	13.15	14.49	6.71	7.30	7.72	8.30	9.63
4H	2H	8.67	9.37	9.66	10.36	11.66	5.21	5.91	6.20	6.90	8.20
	3H	10.50	11.09	11.51	12.10	13.42	6.56	7.15	7.57	8.16	9.48
	4H	11.20	11.73	12.21	12.74	14.08	7.11	7.65	8.12	8.65	9.99
	6H	11.72	12.18	12.74	13.21	14.55	7.53	7.99	8.56	9.02	10.36
	8H	11.90	12.33	12.92	13.35	14.71	7.66	8.09	8.69	9.12	10.47
	12H	12.00	12.38	13.04	13.42	14.78	7.73	8.11	8.77	9.16	10.51
8H	4H	11.17	11.60	12.19	12.62	13.97	7.40	7.82	8.42	8.85	10.20
	6H	11.74	12.09	12.79	13.16	14.51	7.92	8.27	8.96	9.34	10.69
	8H	11.96	12.27	13.02	13.32	14.69	8.11	8.42	9.16	9.47	10.84
	12H	12.11	12.38	13.16	13.42	14.84	8.23	8.50	9.29	9.55	10.96
12H	4H	11.12	11.51	12.16	12.55	13.90	7.40	7.79	8.44	8.83	10.18
	6H	11.72	12.03	12.77	13.08	14.45	7.97	8.28	9.02	9.33	10.70
	8H	11.94	12.22	13.00	13.26	14.67	8.18	8.45	9.24	9.50	10.91