

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: P915891

Luminaire Tested: DFN2DIP-4P3F0-050D060US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915891
REPORT IS A COMBINATION OF REPORTS P900595 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D060US930-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

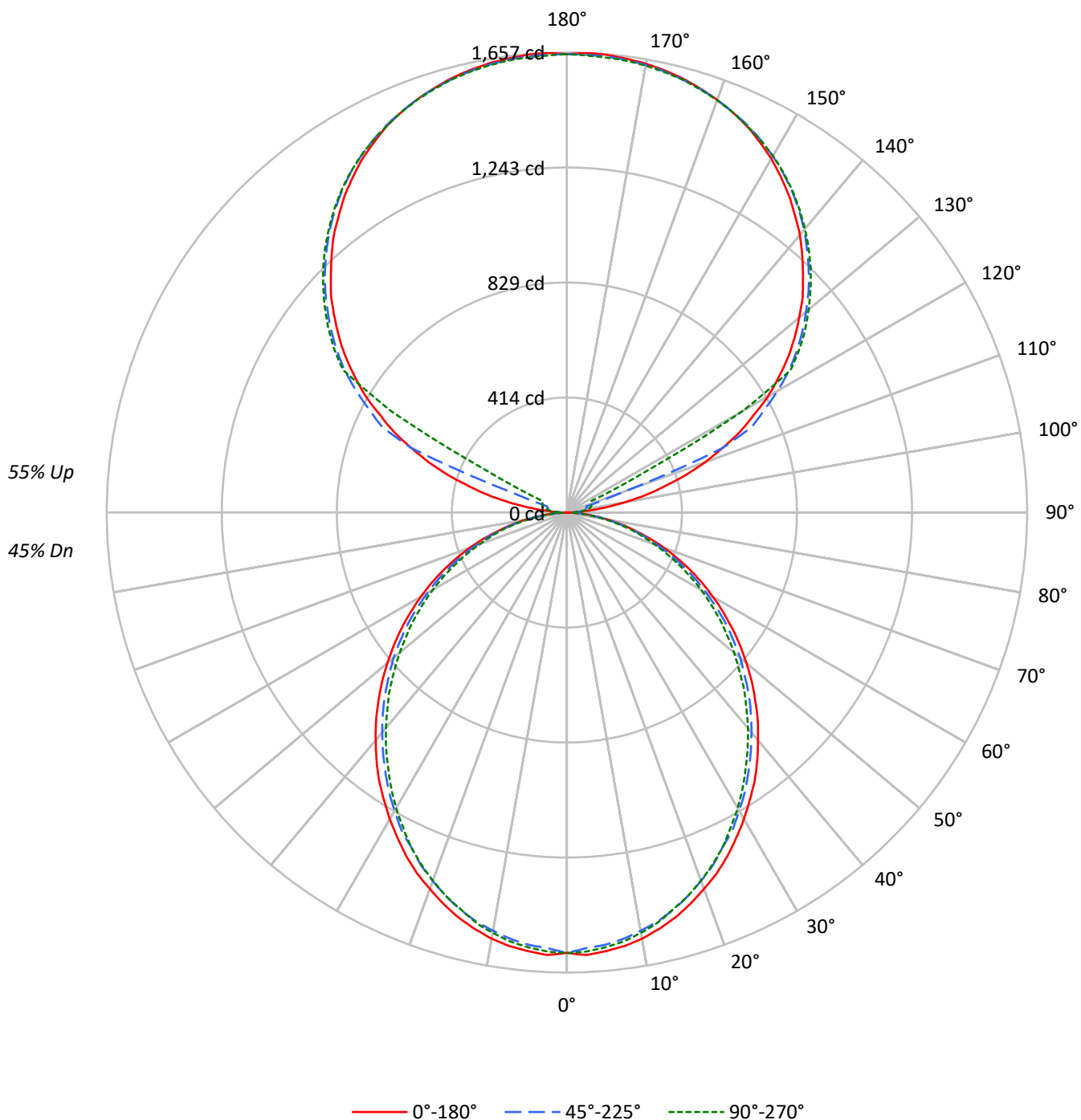
Lumens per Lamp: N/A
Luminaire Lumens: 8878.6 lumens
Efficiency: N/A
Efficacy: 92.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 96
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45	45	45
1	97	92	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44	38	38	38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	33	31	27	27	27
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27	23	23	23
5	67	56	48	42	62	52	45	39	43	38	34	36	32	29	29	26	24	20	20	20
6	62	50	42	36	57	46	39	34	39	34	30	32	28	25	26	23	21	18	18	18
7	57	45	37	32	53	42	35	30	35	30	26	30	25	22	24	21	18	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17	14	14	14
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15	13	13	13
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1808	1808	1808
5°	1809	1781	1794
10°	1794	1756	1769
15°	1766	1726	1730
20°	1729	1685	1691
25°	1693	1635	1645
30°	1647	1590	1588
35°	1604	1536	1527
40°	1551	1481	1469
45°	1497	1426	1409
50°	1439	1369	1341
55°	1379	1302	1277
60°	1310	1224	1205
65°	1234	1142	1119
70°	1138	1042	1027
75°	1006	923	940
80°	845	770	777
85°	596	510	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1497 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	149.3	1.7
10°-20°	420.0	4.7
20°-30°	617.3	7.0
30°-40°	717.0	8.1
40°-50°	716.1	8.1
50°-60°	624.4	7.0
60°-70°	461.6	5.2
70°-80°	261.1	2.9
80°-90°	71.8	0.8
90°-100°	54.4	0.6
100°-110°	202.9	2.3
110°-120°	538.2	6.1
120°-130°	892.7	10.1
130°-140°	948.2	10.7
140°-150°	881.3	9.9
150°-160°	708.5	8.0
160°-170°	456.5	5.1
170°-180°	157.1	1.8
0°-30°	1186.6	13.4
0°-40°	1903.6	21.4
0°-60°	3244.1	36.5
0°-90°	4038.6	45.5
90°-120°	795.6	9.0
90°-150°	3517.8	39.6
90°-180°	4840.0	54.5
0°-180°	8878.6	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°	1	14	24	30	32	8
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°	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°	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	8.86	9.68	9.86	10.69	12.03	8.42	9.24	9.41	10.25	11.58
	3H	10.52	11.25	11.52	12.27	13.62	10.03	10.76	11.03	11.78	13.13
	4H	11.10	11.80	12.12	12.82	14.18	10.61	11.30	11.62	12.32	13.68
	6H	11.49	12.14	12.52	13.16	14.53	10.99	11.64	12.02	12.66	14.03
	8H	11.60	12.21	12.63	13.25	14.62	11.09	11.71	12.13	12.75	14.12
	12H	11.64	12.22	12.68	13.26	14.65	11.13	11.71	12.17	12.75	14.14
4H	2H	9.32	10.01	10.34	11.03	12.39	8.96	9.66	9.99	10.68	12.04
	3H	11.17	11.76	12.21	12.80	14.18	10.76	11.35	11.80	12.39	13.77
	4H	11.88	12.42	12.92	13.45	14.85	11.46	11.99	12.50	13.03	14.43
	6H	12.39	12.85	13.44	13.91	15.31	11.96	12.42	13.01	13.48	14.87
	8H	12.54	12.97	13.59	14.02	15.43	12.10	12.53	13.15	13.58	14.99
	12H	12.61	12.99	13.67	14.06	15.48	12.16	12.54	13.23	13.61	15.03
8H	4H	12.07	12.50	13.12	13.55	14.96	11.69	12.12	12.74	13.18	14.59
	6H	12.69	13.05	13.77	14.15	15.55	12.31	12.66	13.39	13.76	15.17
	8H	12.91	13.22	13.99	14.30	15.73	12.52	12.83	13.60	13.91	15.34
	12H	13.04	13.31	14.12	14.39	15.85	12.63	12.90	13.71	13.98	15.44
12H	4H	12.05	12.44	13.12	13.51	14.93	11.69	12.07	12.75	13.14	14.56
	6H	12.72	13.03	13.80	14.11	15.54	12.35	12.66	13.43	13.74	15.17
	8H	12.96	13.23	14.04	14.31	15.77	12.58	12.85	13.66	13.93	15.39