

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: P926410

Luminaire Tested: DFN2DIP-TR4F0-050D060US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926410
REPORT IS A COMBINATION OF REPORTS P900407 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-050D060US950-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

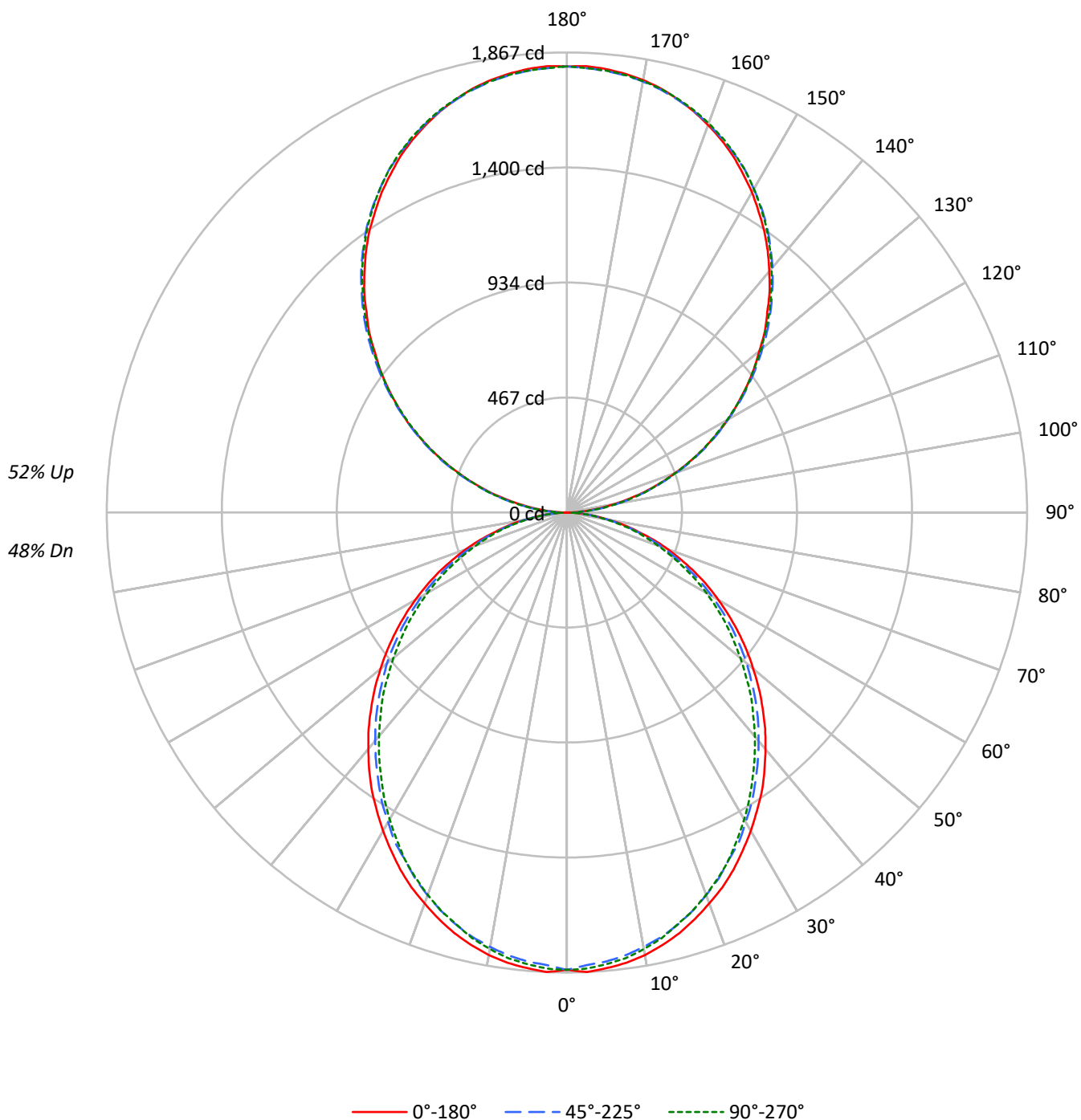
Lumens per Lamp: N/A
Luminaire Lumens: 9788.0 lumens
Efficiency: N/A
Efficacy: 112.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 86.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
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
RCR																	
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1474	1474	1474
5°	1477	1454	1464
10°	1465	1434	1444
15°	1443	1411	1413
20°	1414	1378	1381
25°	1385	1339	1344
30°	1349	1302	1298
35°	1315	1259	1248
40°	1272	1216	1201
45°	1230	1172	1153
50°	1184	1126	1098
55°	1136	1073	1047
60°	1081	1010	988
65°	1022	945	919
70°	946	866	845
75°	841	771	776
80°	715	650	645
85°	517	440	427

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1410 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.7	1.8
10°-20°	491.5	5.0
20°-30°	722.3	7.4
30°-40°	838.9	8.6
40°-50°	837.9	8.6
50°-60°	730.6	7.5
60°-70°	540.1	5.5
70°-80°	305.6	3.1
80°-90°	85.8	0.9
90°-100°	112.0	1.1
100°-110°	355.9	3.6
110°-120°	609.1	6.2
120°-130°	801.1	8.2
130°-140°	899.2	9.2
140°-150°	881.7	9.0
150°-160°	739.6	7.6
160°-170°	490.5	5.0
170°-180°	171.4	1.8
0°-30°	1388.5	14.2
0°-40°	2227.5	22.8
0°-60°	3796.0	38.8
0°-90°	4727.4	48.3
90°-120°	1077.0	11.0
90°-150°	3659.0	37.4
90°-180°	5061.0	51.7
0°-180°	9788.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1856	1856	1856	1856	1856	
5°	1856	1849	1829	1844	1840	176
15°	1767	1756	1733	1740	1731	498
25°	1599	1585	1554	1558	1554	736
35°	1380	1362	1333	1322	1314	862
45°	1123	1110	1083	1064	1057	866
55°	850	839	817	796	787	760
65°	573	562	544	528	519	567
75°	300	296	287	277	280	320
85°	73	71	70	64	62	82
90°	2	20	54	50	52	9
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1856.0	1856.0	1856.0	1856.0	1856.0
2.5°	1866.8	1857.9	1838.3	1856.0	1852.7
5°	1856.0	1849.0	1829.3	1843.5	1840.2
7.5°	1843.5	1832.9	1813.3	1827.7	1824.0
10°	1824.0	1811.6	1790.2	1804.3	1799.1
12.5°	1797.1	1786.6	1765.2	1774.1	1770.4
15°	1766.8	1756.2	1732.9	1740.2	1731.2
17.5°	1729.3	1718.7	1695.4	1704.3	1695.4
20°	1688.3	1677.7	1652.7	1658.0	1651.0
22.5°	1647.4	1631.2	1608.0	1608.0	1604.3
25°	1599.1	1584.9	1554.5	1558.0	1554.5
27.5°	1545.5	1533.0	1509.9	1504.6	1495.7
30°	1492.1	1477.7	1451.0	1445.7	1438.5
32.5°	1434.9	1424.3	1395.7	1384.9	1377.8
35°	1379.6	1361.8	1333.2	1322.4	1313.6
37.5°	1317.1	1301.1	1272.4	1259.9	1251.1
40°	1253.0	1238.6	1210.0	1194.0	1186.9
42.5°	1190.5	1176.1	1147.7	1129.6	1119.0
45°	1122.7	1110.2	1083.3	1063.8	1056.6
47.5°	1056.6	1044.1	1015.5	995.8	985.2
50°	986.9	978.0	953.0	928.1	919.1
52.5°	919.1	906.6	883.5	863.8	851.3
55°	849.6	838.9	817.4	796.0	787.1
57.5°	779.9	771.0	747.7	726.4	719.1
60°	710.3	703.3	678.3	658.5	653.3
62.5°	642.5	630.0	612.2	594.3	587.2
65°	573.0	562.2	544.4	528.3	519.4
67.5°	501.6	492.6	476.6	464.1	456.9
70°	435.5	428.3	412.2	399.7	392.8
72.5°	367.8	360.5	351.6	339.1	333.8
75°	299.7	296.3	287.2	276.7	280.3
77.5°	239.2	231.9	228.4	223.0	217.8
80°	178.6	176.7	173.1	167.8	164.2
82.5°	121.3	121.3	119.6	112.5	112.5
85°	73.1	71.4	69.6	64.2	62.5
87.5°	32.1	28.6	25.0	19.7	17.8
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3

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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	8.45	9.30	9.43	10.29	11.58	8.02	8.87	8.99	9.86	11.15
	3H	10.11	10.87	11.10	11.87	13.18	9.64	10.40	10.62	11.39	12.71
	4H	10.70	11.42	11.70	12.42	13.74	10.23	10.95	11.22	11.94	13.27
	6H	11.10	11.76	12.11	12.76	14.10	10.62	11.29	11.63	12.29	13.63
	8H	11.20	11.83	12.22	12.85	14.19	10.73	11.36	11.74	12.38	13.71
	12H	11.25	11.85	12.27	12.86	14.22	10.77	11.37	11.79	12.38	13.74
4H	2H	8.91	9.63	9.92	10.63	11.96	8.57	9.29	9.57	10.29	11.61
	3H	10.78	11.38	11.79	12.41	13.74	10.39	10.99	11.40	12.01	13.35
	4H	11.49	12.04	12.51	13.06	14.42	11.09	11.64	12.11	12.66	14.02
	6H	12.01	12.48	13.04	13.52	14.88	11.60	12.07	12.63	13.11	14.47
	8H	12.16	12.60	13.19	13.63	15.01	11.74	12.19	12.78	13.22	14.60
	12H	12.23	12.63	13.28	13.68	15.06	11.81	12.21	12.86	13.26	14.64
8H	4H	11.69	12.13	12.72	13.16	14.54	11.33	11.77	12.36	12.81	14.18
	6H	12.32	12.68	13.37	13.76	15.13	11.96	12.32	13.01	13.40	14.77
	8H	12.54	12.86	13.60	13.92	15.31	12.17	12.49	13.23	13.55	14.94
	12H	12.67	12.95	13.74	14.01	15.44	12.29	12.57	13.35	13.63	15.06
12H	4H	11.67	12.07	12.72	13.12	14.50	11.32	11.72	12.37	12.77	14.15
	6H	12.35	12.67	13.41	13.73	15.12	12.00	12.32	13.06	13.38	14.77
	8H	12.59	12.87	13.66	13.93	15.36	12.23	12.52	13.30	13.57	15.00