

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: P924057

Luminaire Tested: DFN2DIP-4P3F0-040D060US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924057
REPORT IS A COMBINATION OF REPORTS P900594 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D060US950-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

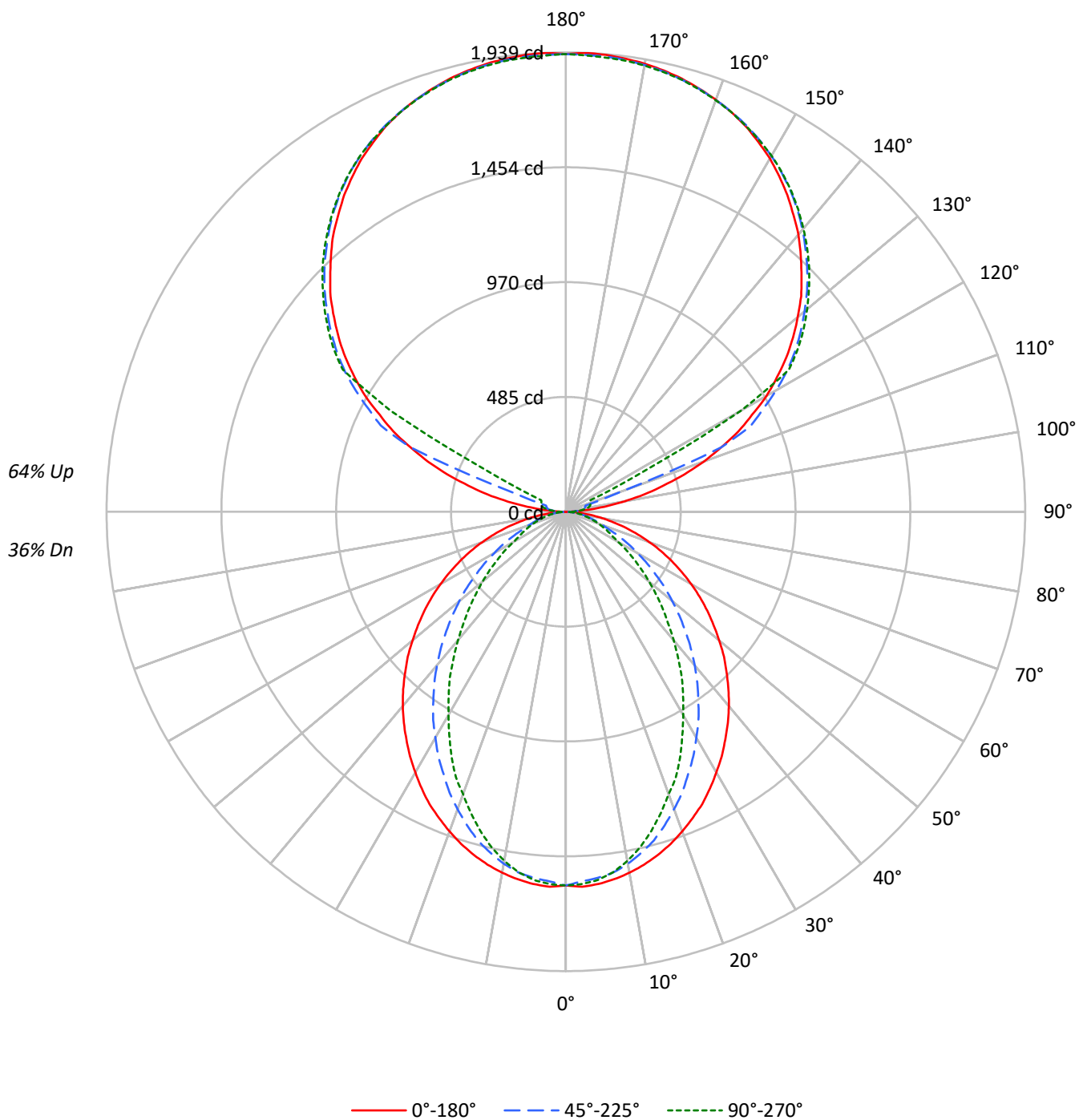
Lumens per Lamp: N/A
Luminaire Lumens: 8910.3 lumens
Efficiency: N/A
Efficacy: 105.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 84.8
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	50	30	10
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	44	44	36
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38	38	38	31
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32	32	32	27
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28	28	28	23
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24	24	24	20
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21	21	21	18
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19	19	19	16
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17	17	17	14
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15	15	15	13
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14	14	14	12
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13	13	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1797	1797	1797
5°	1799	1768	1780
10°	1780	1732	1721
15°	1755	1673	1631
20°	1721	1593	1521
25°	1686	1504	1414
30°	1641	1412	1279
35°	1596	1314	1161
40°	1550	1212	1025
45°	1497	1100	902
50°	1442	986	782
55°	1385	865	667
60°	1318	738	548
65°	1241	609	493
70°	1148	490	445
75°	1031	429	404
80°	862	356	348
85°	584	232	258

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°	147.8	1.7
10°-20°	405.8	4.6
20°-30°	569.7	6.4
30°-40°	621.0	7.0
40°-50°	570.8	6.4
50°-60°	448.2	5.0
60°-70°	291.8	3.3
70°-80°	150.2	1.7
80°-90°	41.8	0.5
90°-100°	63.7	0.7
100°-110°	237.5	2.7
110°-120°	629.8	7.1
120°-130°	1044.5	11.7
130°-140°	1109.5	12.5
140°-150°	1031.2	11.6
150°-160°	829.1	9.3
160°-170°	534.2	6.0
170°-180°	183.9	2.1
0°-30°	1123.3	12.6
0°-40°	1744.3	19.6
0°-60°	2763.3	31.0
0°-90°	3247.0	36.4
90°-120°	930.9	10.4
90°-150°	4116.2	46.2
90°-180°	5663.0	63.6
0°-180°	8910.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1577	1577	1577	1577	1577	
5°	1577	1570	1551	1564	1560	150
15°	1500	1484	1436	1409	1395	423
25°	1362	1316	1222	1163	1142	626
35°	1173	1100	975	885	853	734
45°	959	864	714	612	578	741
55°	729	618	464	378	351	652
65°	492	377	248	200	196	488
75°	262	163	114	104	103	278
85°	61	31	27	27	27	70
90°	1	17	28	35	38	8
95°	91	45	54	62	60	108
105°	425	467	85	101	106	454
115°	804	828	862	215	115	791
125°	1136	1155	1181	1191	1195	1014
135°	1406	1429	1441	1455	1452	1086
145°	1631	1630	1654	1663	1656	1020
155°	1796	1784	1800	1809	1798	828
165°	1893	1884	1888	1898	1888	535
175°	1936	1926	1929	1939	1925	184
180°	1932	1932	1932	1932	1932	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1577.2	1577.2	1577.2	1577.2	1577.2
2.5°	1584.3	1577.2	1561.4	1575.8	1572.9
5°	1577.2	1570.0	1551.4	1564.3	1560.1
7.5°	1564.3	1555.8	1535.8	1541.4	1534.3
10°	1547.2	1537.2	1508.7	1504.3	1495.9
12.5°	1525.8	1512.9	1474.3	1465.8	1450.1
15°	1500.1	1484.3	1435.9	1408.8	1394.6
17.5°	1470.1	1447.2	1387.2	1355.9	1333.0
20°	1435.9	1407.2	1335.9	1300.3	1268.8
22.5°	1398.8	1365.9	1283.0	1234.6	1213.3
25°	1361.6	1315.9	1221.7	1163.3	1141.7
27.5°	1317.5	1268.8	1164.6	1097.6	1064.7
30°	1270.3	1216.0	1101.8	1029.1	990.5
32.5°	1224.6	1158.9	1042.0	956.3	920.5
35°	1173.3	1100.4	974.9	884.9	853.4
37.5°	1123.3	1044.7	912.0	813.5	777.9
40°	1070.5	984.9	846.4	745.1	708.0
42.5°	1016.2	924.9	780.8	675.1	639.5
45°	959.2	863.5	713.7	612.3	578.0
47.5°	905.0	803.6	649.5	548.1	516.7
50°	845.0	743.6	586.6	488.1	458.2
52.5°	786.4	679.3	526.7	432.4	405.4
55°	729.3	618.0	463.8	378.3	351.2
57.5°	670.9	556.7	408.2	328.3	305.5
60°	610.8	496.7	349.6	276.9	254.1
62.5°	552.5	438.3	299.7	231.2	219.9
65°	492.5	376.7	248.3	199.9	195.5
67.5°	435.4	319.7	199.9	175.5	171.2
70°	375.4	264.1	165.5	151.3	145.5
72.5°	318.3	212.6	138.4	127.1	124.2
75°	262.5	162.7	114.2	104.2	102.8
77.5°	207.0	115.5	90.0	84.2	81.3
80°	155.5	82.8	68.4	62.9	62.9
82.5°	108.5	55.7	47.1	44.2	44.2
85°	61.3	31.4	27.1	27.1	27.1
87.5°	22.9	11.4	11.4	10.0	10.0
90°	1.3	16.8	27.9	35.0	37.7
92.5°	35.0	29.4	33.5	36.3	37.7
95°	90.8	44.6	54.5	61.6	60.1
97.5°	163.5	48.9	71.2	75.6	76.9
100°	247.5	55.9	79.7	90.8	93.6
102.5°	339.6	337.0	82.5	97.8	102.1
105°	424.9	466.9	85.3	100.6	106.3
107.5°	524.2	559.0	88.1	103.4	109.0
110°	619.3	648.5	244.7	104.9	110.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	708.7	733.8	710.1	107.5	111.9
115°	803.7	827.5	862.5	215.3	114.7
117.5°	886.2	914.1	938.0	738.0	371.8
120°	978.5	999.4	1024.7	1041.4	852.7
122.5°	1056.7	1079.1	1107.1	1115.4	1116.9
125°	1136.4	1154.6	1181.1	1191.0	1195.1
127.5°	1209.1	1228.7	1249.7	1263.7	1265.0
130°	1277.6	1300.0	1315.3	1330.7	1329.4
132.5°	1347.5	1365.7	1381.0	1393.6	1392.3
135°	1406.3	1428.7	1441.1	1455.2	1452.4
137.5°	1467.6	1484.4	1498.5	1512.5	1508.4
140°	1527.7	1539.1	1554.4	1566.9	1560.0
142.5°	1578.2	1588.0	1606.2	1617.2	1610.3
145°	1631.3	1629.8	1653.6	1663.4	1656.4
147.5°	1677.3	1673.1	1696.9	1703.8	1698.4
150°	1722.2	1712.3	1734.8	1743.1	1736.1
152.5°	1759.8	1748.7	1769.6	1778.1	1768.2
155°	1796.2	1783.7	1800.5	1808.8	1797.6
157.5°	1825.6	1814.4	1827.0	1836.8	1825.6
160°	1850.8	1842.3	1850.8	1859.1	1849.3
162.5°	1873.0	1864.7	1871.7	1881.5	1868.9
165°	1892.6	1884.3	1888.4	1898.3	1888.4
167.5°	1908.0	1899.6	1903.9	1913.7	1901.0
170°	1920.7	1912.2	1915.1	1924.8	1912.2
172.5°	1929.0	1920.7	1923.5	1933.3	1920.7
175°	1936.0	1926.1	1929.0	1938.7	1924.8
177.5°	1938.7	1929.0	1930.4	1940.2	1927.7
180°	1931.8	1931.8	1931.8	1931.8	1931.8

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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	7.74	8.47	8.81	9.54	10.99	3.70	4.43	4.77	5.50	6.95
	3H	9.40	10.05	10.48	11.13	12.61	4.87	5.52	5.95	6.60	8.07
	4H	10.00	10.62	11.09	11.70	13.18	5.31	5.93	6.40	7.01	8.49
	6H	10.42	10.98	11.52	12.07	13.56	5.62	6.19	6.72	7.27	8.77
	8H	10.54	11.08	11.64	12.18	13.66	5.71	6.25	6.81	7.35	8.83
	12H	10.59	11.11	11.70	12.20	13.71	5.74	6.26	6.85	7.35	8.86
4H	2H	7.74	8.36	8.84	9.44	10.92	4.28	4.90	5.38	5.97	7.45
	3H	9.55	10.07	10.66	11.18	12.67	5.61	6.13	6.72	7.23	8.72
	4H	10.24	10.71	11.35	11.81	13.32	6.15	6.62	7.26	7.72	9.23
	6H	10.74	11.15	11.86	12.27	13.77	6.56	6.96	7.67	8.08	9.59
	8H	10.92	11.29	12.03	12.40	13.93	6.68	7.06	7.80	8.17	9.69
	12H	11.00	11.34	12.14	12.47	13.99	6.74	7.08	7.87	8.20	9.73
8H	4H	10.20	10.58	11.31	11.69	13.21	6.42	6.80	7.54	7.91	9.43
	6H	10.76	11.07	11.89	12.22	13.74	6.93	7.24	8.06	8.39	9.91
	8H	10.97	11.24	12.11	12.37	13.91	7.11	7.38	8.26	8.52	10.06
	12H	11.10	11.34	12.25	12.47	14.04	7.22	7.46	8.37	8.59	10.17
12H	4H	10.15	10.49	11.28	11.61	13.14	6.42	6.76	7.55	7.88	9.41
	6H	10.73	11.00	11.87	12.14	13.67	6.97	7.25	8.12	8.38	9.92
	8H	10.94	11.18	12.09	12.31	13.89	7.17	7.41	8.32	8.54	10.12