

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: P924089

Luminaire Tested: DFN2DIP-4P3F0-060D040US950-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924089
REPORT IS A COMBINATION OF REPORTS P900578 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US950-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

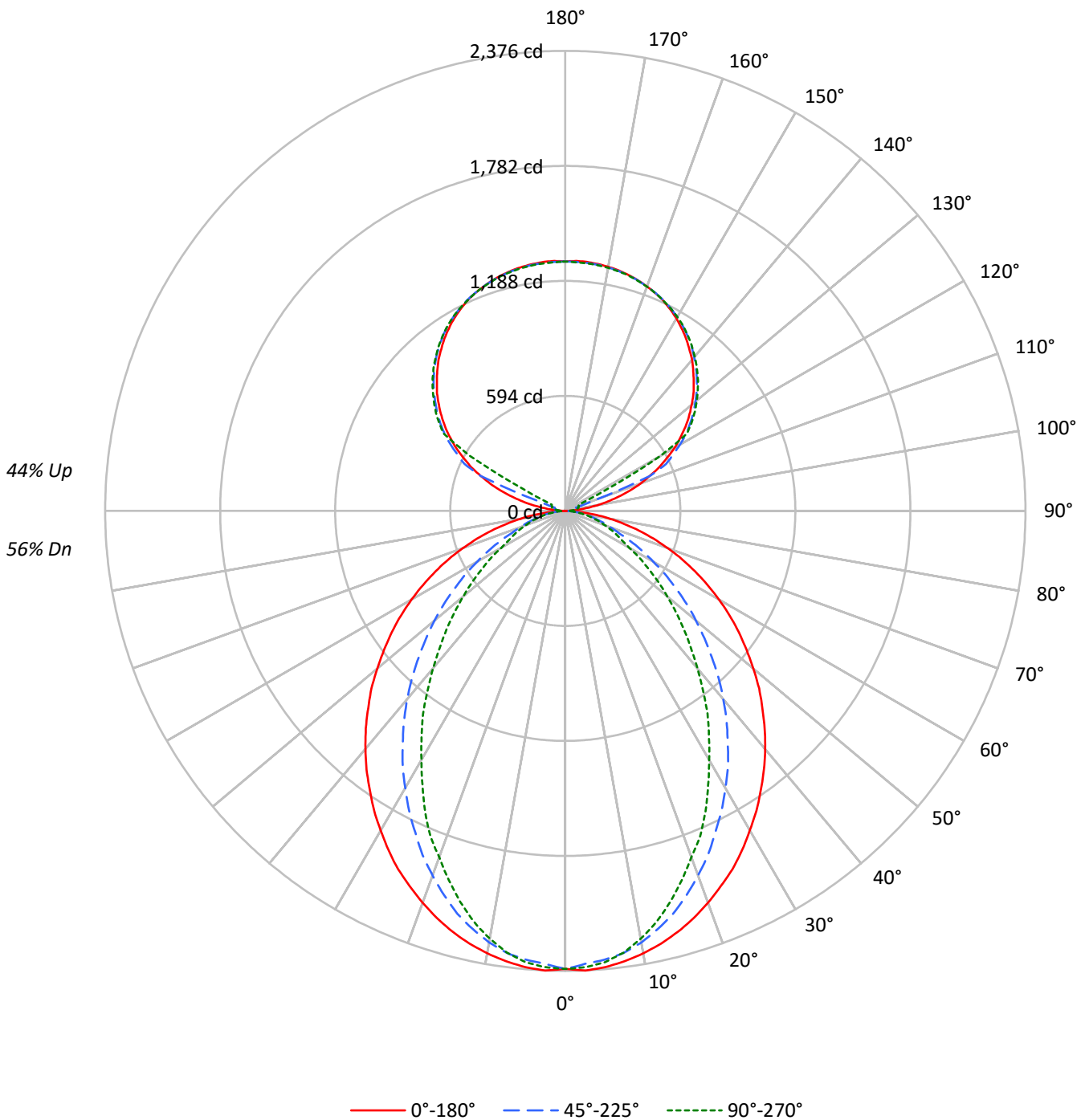
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8643.2 lumens
Efficiency: N/A
Efficacy: 94.2 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: General Diffuse

Input Watts (W): 91.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924089
CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P924089

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				
RC	80				70				50				30				10			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62	56	56	56	56
1	100	96	92	88	93	89	86	83	77	75	72	66	64	63	56	54	53	49	49	49	49
2	91	84	78	73	85	79	73	69	68	64	61	58	56	53	50	48	46	42	42	42	42
3	84	74	67	62	78	70	63	58	61	56	52	52	49	46	44	42	40	36	36	36	36
4	77	66	59	53	71	62	55	50	54	49	45	47	43	40	40	37	35	31	31	31	31
5	71	59	51	46	66	56	49	43	49	43	39	42	38	35	36	33	31	27	27	27	27
6	65	54	46	40	61	50	43	38	44	39	34	39	34	31	33	30	27	24	24	24	24
7	61	49	41	35	56	46	39	34	40	35	30	35	31	27	30	27	24	22	22	22	22
8	56	44	37	31	52	42	35	30	37	31	27	32	28	25	28	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	28	25	30	25	22	26	23	20	18	18	18	18
10	49	37	30	25	46	35	29	24	31	26	22	28	23	20	24	21	18	16	16	16	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2696	2696	2696
5°	2699	2651	2669
10°	2670	2598	2582
15°	2632	2510	2446
20°	2581	2390	2281
25°	2530	2256	2121
30°	2461	2118	1919
35°	2394	1971	1741
40°	2325	1818	1538
45°	2246	1650	1353
50°	2163	1479	1173
55°	2077	1297	1000
60°	1977	1107	822
65°	1862	914	739
70°	1722	734	668
75°	1547	643	606
80°	1293	534	522
85°	877	348	387

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2246 cd/sqm



TEST NUMBER: P924089

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	2.6
10°-20°	608.7	7.0
20°-30°	854.5	9.9
30°-40°	931.5	10.8
40°-50°	856.2	9.9
50°-60°	672.4	7.8
60°-70°	437.7	5.1
70°-80°	225.3	2.6
80°-90°	59.8	0.7
90°-100°	42.5	0.5
100°-110°	158.3	1.8
110°-120°	419.9	4.9
120°-130°	696.4	8.1
130°-140°	739.7	8.6
140°-150°	687.5	8.0
150°-160°	552.7	6.4
160°-170°	356.1	4.1
170°-180°	122.6	1.4
0°-30°	1684.9	19.5
0°-40°	2616.4	30.3
0°-60°	4144.9	48.0
0°-90°	4867.7	56.3
90°-120°	620.6	7.2
90°-150°	2744.1	31.7
90°-180°	3776.0	43.7
0°-180°	8643.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	1	11	19	23	25	8
95°	60	30	36	41	40	72
105°	283	311	57	67	71	303
115°	536	552	575	144	76	527
125°	758	770	787	794	797	676
135°	938	952	961	970	968	724
145°	1088	1087	1102	1109	1104	680
155°	1198	1189	1200	1206	1198	552
165°	1262	1256	1259	1266	1259	356
175°	1291	1284	1286	1292	1283	123
180°	1288	1288	1288	1288	1288	



TEST NUMBER: P924089

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	0.9	11.2	18.6	23.4	25.1
92.5°	23.4	19.6	22.3	24.2	25.1
95°	60.5	29.8	36.3	41.0	40.1
97.5°	109.0	32.6	47.5	50.4	51.2
100°	164.9	37.3	53.1	60.5	62.4
102.5°	226.4	224.7	55.0	65.2	68.0
105°	283.2	311.3	56.9	67.1	70.8
107.5°	349.5	372.7	58.8	69.0	72.7
110°	412.9	432.4	163.1	69.9	73.6



TEST NUMBER: P924089

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	472.5	489.2	473.4	71.7	74.6
115°	535.8	551.6	575.0	143.5	76.5
117.5°	590.8	609.4	625.3	492.0	247.8
120°	652.3	666.3	683.1	694.3	568.5
122.5°	704.4	719.4	738.1	743.6	744.6
125°	757.6	769.8	787.4	794.0	796.8
127.5°	806.0	819.1	833.1	842.5	843.3
130°	851.7	866.7	876.8	887.1	886.3
132.5°	898.3	910.5	920.7	929.1	928.2
135°	937.5	952.5	960.8	970.1	968.3
137.5°	978.4	989.6	999.0	1008.3	1005.5
140°	1018.5	1026.0	1036.2	1044.6	1040.0
142.5°	1052.2	1058.7	1070.8	1078.1	1073.5
145°	1087.6	1086.6	1102.3	1108.9	1104.3
147.5°	1118.2	1115.4	1131.3	1135.9	1132.3
150°	1148.0	1141.6	1156.5	1162.1	1157.4
152.5°	1173.2	1165.8	1179.7	1185.3	1178.9
155°	1197.5	1189.2	1200.3	1205.9	1198.4
157.5°	1217.0	1209.6	1218.1	1224.6	1217.0
160°	1233.8	1228.2	1233.8	1239.3	1232.9
162.5°	1248.7	1243.2	1247.8	1254.3	1245.9
165°	1261.8	1256.2	1259.0	1265.5	1259.0
167.5°	1272.1	1266.3	1269.3	1275.8	1267.4
170°	1280.5	1274.8	1276.6	1283.2	1274.8
172.5°	1286.0	1280.5	1282.4	1288.9	1280.5
175°	1290.6	1284.1	1286.0	1292.5	1283.2
177.5°	1292.5	1286.0	1286.9	1293.5	1285.1
180°	1287.9	1287.9	1287.9	1287.9	1287.9



TEST NUMBER: P924089
 CATALOG NUMBER: DFN2DIP-4P3F0-060D040US950-RLLONL

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	11.13	12.01	12.04	12.94	14.12	7.09	7.98	8.00	8.90	10.08
	3H	12.81	13.60	13.73	14.53	15.74	8.28	9.07	9.20	10.00	11.21
	4H	13.42	14.16	14.35	15.10	16.31	8.73	9.47	9.66	10.41	11.63
	6H	13.84	14.52	14.78	15.47	16.69	9.04	9.73	9.99	10.67	11.90
	8H	13.96	14.62	14.92	15.58	16.80	9.13	9.79	10.09	10.75	11.97
	12H	14.02	14.65	14.98	15.60	16.85	9.18	9.80	10.13	10.75	12.00
4H	2H	11.15	11.90	12.09	12.84	14.05	7.69	8.44	8.63	9.37	10.59
	3H	12.98	13.60	13.93	14.57	15.80	9.04	9.66	9.99	10.63	11.86
	4H	13.67	14.24	14.63	15.20	16.45	9.58	10.15	10.54	11.11	12.37
	6H	14.19	14.67	15.16	15.66	16.91	10.00	10.49	10.97	11.47	12.72
	8H	14.36	14.81	15.33	15.79	17.06	10.13	10.58	11.10	11.56	12.83
	12H	14.45	14.86	15.45	15.86	17.13	10.19	10.60	11.18	11.59	12.87
8H	4H	13.64	14.10	14.62	15.08	16.34	9.86	10.32	10.84	11.30	12.57
	6H	14.21	14.58	15.20	15.60	16.87	10.38	10.75	11.38	11.77	13.04
	8H	14.42	14.75	15.43	15.76	17.04	10.56	10.89	11.57	11.90	13.19
	12H	14.56	14.85	15.57	15.85	17.18	10.68	10.97	11.69	11.97	13.30
12H	4H	13.60	14.01	14.59	15.00	16.27	9.87	10.28	10.86	11.28	12.55
	6H	14.18	14.51	15.19	15.52	16.80	10.42	10.76	11.43	11.76	13.05
	8H	14.40	14.69	15.41	15.69	17.02	10.63	10.92	11.64	11.93	13.26