

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: P924129

Luminaire Tested: DFN2DIP-4P4F0-040D040US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924129
REPORT IS A COMBINATION OF REPORTS P900614 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D040US950-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

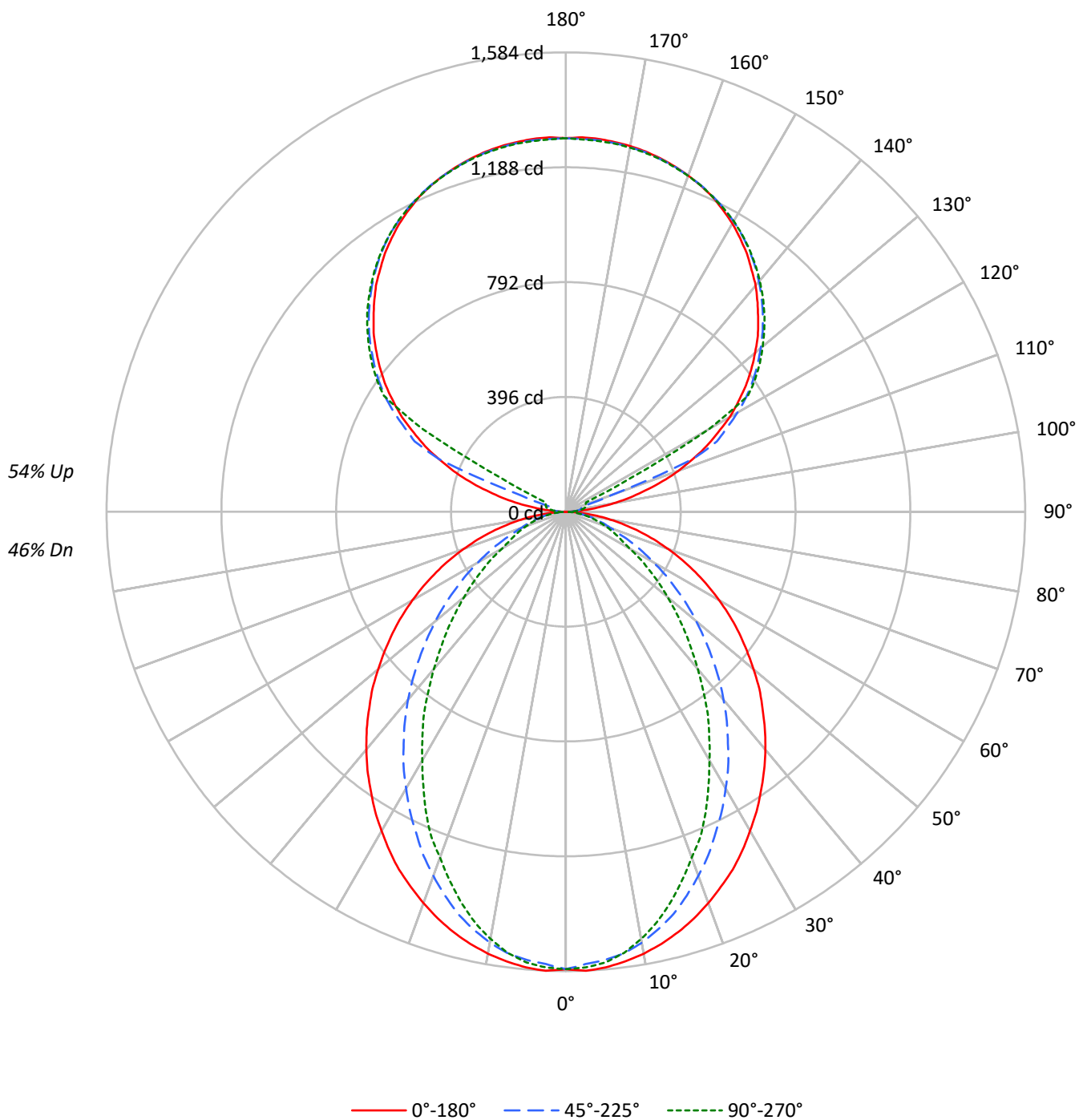
Lumens per Lamp: N/A
Luminaire Lumens: 7021.4 lumens
Efficiency: N/A
Efficacy: 100.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 69.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924129

CATALOG NUMBER: DFN2DIP-4P4F0-040D040US950-RLLONL

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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1023	1023	1023
5°	1025	1007	1014
10°	1015	988	981
15°	1001	955	931
20°	983	911	868
25°	964	861	808
30°	938	809	732
35°	914	754	664
40°	888	696	587
45°	859	633	518
50°	829	569	449
55°	797	500	384
60°	760	428	316
65°	718	355	285
70°	667	287	259
75°	603	253	236
80°	510	214	206
85°	356	144	158

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 859 cd/sqm

TEST NUMBER: P924129

CATALOG NUMBER: DFN2DIP-4P4F0-040D040US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.8	2.1
10°-20°	405.8	5.8
20°-30°	569.7	8.1
30°-40°	621.0	8.8
40°-50°	570.8	8.1
50°-60°	448.2	6.4
60°-70°	291.8	4.2
70°-80°	150.2	2.1
80°-90°	40.6	0.6
90°-100°	42.5	0.6
100°-110°	158.3	2.3
110°-120°	419.9	6.0
120°-130°	696.4	9.9
130°-140°	739.7	10.5
140°-150°	687.5	9.8
150°-160°	552.7	7.9
160°-170°	356.1	5.1
170°-180°	122.6	1.7
0°-30°	1123.3	16.0
0°-40°	1744.3	24.8
0°-60°	2763.3	39.4
0°-90°	3245.9	46.2
90°-120°	620.6	8.8
90°-150°	2744.1	39.1
90°-180°	3776.0	53.8
0°-180°	7021.4	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	11	19	23	25	7
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: P924129

CATALOG NUMBER: DFN2DIP-4P4F0-040D040US950-RLLONL

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°	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: P924129

CATALOG NUMBER: DFN2DIP-4P4F0-040D040US950-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

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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	6.88	7.68	7.88	8.69	10.01	2.84	3.64	3.84	4.65	5.97
	3H	8.56	9.28	9.57	10.29	11.64	4.03	4.75	5.04	5.76	7.11
	4H	9.17	9.85	10.19	10.87	12.22	4.48	5.16	5.50	6.17	7.53
	6H	9.60	10.22	10.63	11.24	12.61	4.80	5.43	5.83	6.44	7.81
	8H	9.73	10.32	10.76	11.36	12.72	4.89	5.49	5.93	6.52	7.88
	12H	9.79	10.35	10.83	11.38	12.77	4.94	5.50	5.98	6.53	7.92
4H	2H	6.90	7.57	7.92	8.59	9.94	3.44	4.11	4.46	5.13	6.49
	3H	8.73	9.29	9.76	10.34	11.71	4.79	5.35	5.82	6.39	7.76
	4H	9.43	9.94	10.47	10.98	12.37	5.34	5.85	6.38	6.89	8.28
	6H	9.94	10.39	10.99	11.44	12.83	5.76	6.20	6.81	7.26	8.64
	8H	10.12	10.54	11.17	11.59	12.99	5.89	6.30	6.94	7.35	8.75
	12H	10.22	10.59	11.29	11.66	13.06	5.95	6.32	7.02	7.39	8.80
8H	4H	9.39	9.80	10.44	10.86	12.26	5.62	6.03	6.67	7.08	8.48
	6H	9.96	10.30	11.04	11.40	12.80	6.14	6.48	7.21	7.57	8.97
	8H	10.18	10.48	11.26	11.56	12.98	6.33	6.63	7.41	7.71	9.13
	12H	10.32	10.59	11.41	11.66	13.12	6.45	6.71	7.53	7.78	9.24
12H	4H	9.34	9.71	10.41	10.78	12.19	5.62	5.99	6.69	7.06	8.47
	6H	9.94	10.24	11.02	11.31	12.73	6.19	6.49	7.27	7.56	8.98
	8H	10.16	10.42	11.25	11.50	12.96	6.40	6.66	7.48	7.73	9.19

END OF REPORT