

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: P918725

Luminaire Tested: DFN2DIP-4P4F0-060D050US935-RLONL

Issue Date: 11/21/2024

**Test Information**

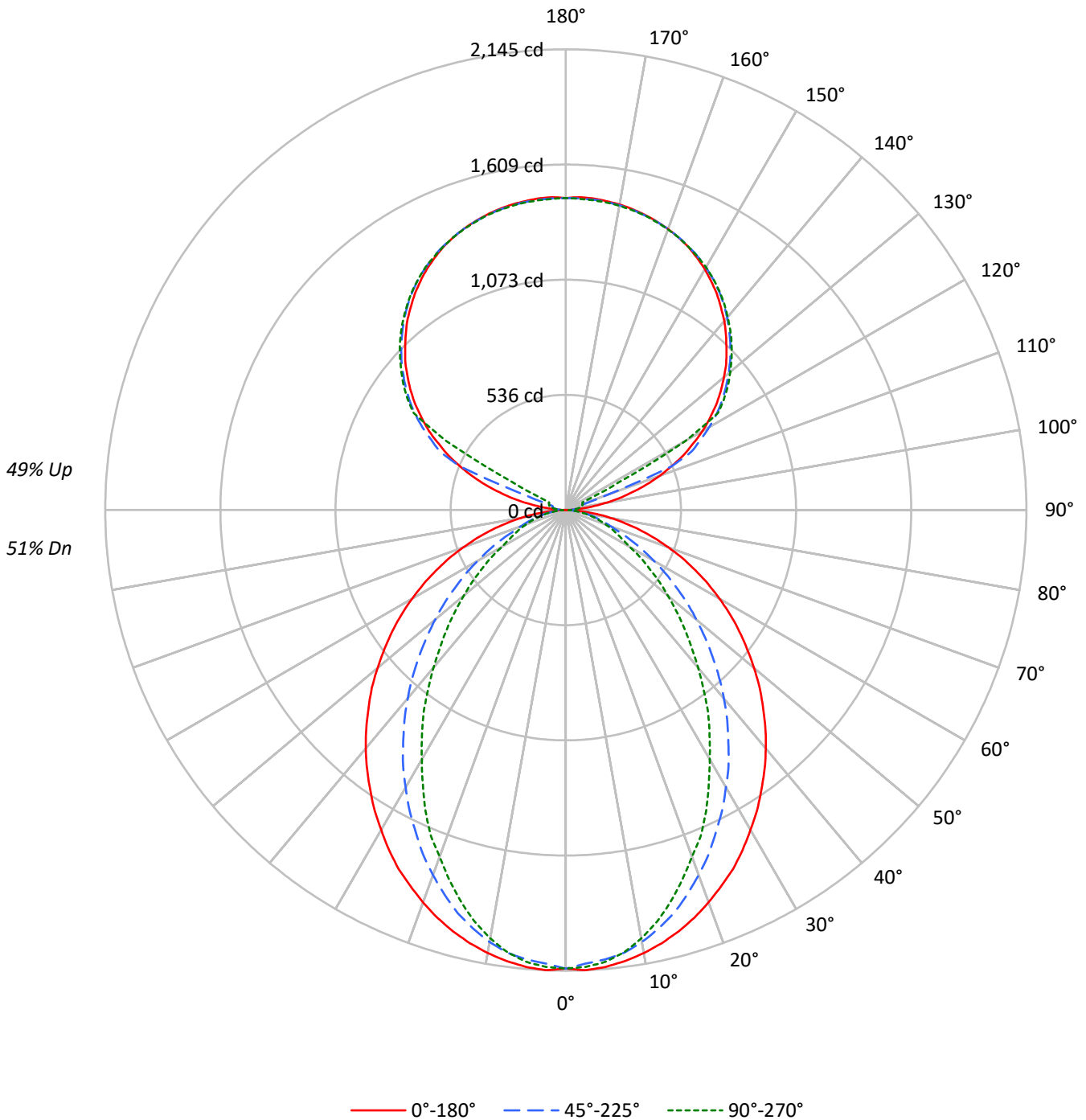
Test Method: LM-79-2019  
Report Number: P918725  
REPORT IS A COMBINATION OF REPORTS P900630 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-060D050US935-RLLONL  
Description: 4 foot, 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: 8653.0 lumens  
Efficiency: N/A  
Efficacy: 85.1 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): 101.7  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9933  
Total Harmonic Distortion (THDi): 0.066  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P918725  
CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P918725  
 CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57	51
1	98	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49	51	50	49	44
2	90	83	77	72	83	77	72	67	66	62	59	55	52	50	45	44	42	45	44	42	37
3	82	73	66	61	76	68	62	57	58	54	50	49	46	43	41	38	36	41	38	36	32
4	76	65	58	52	70	61	54	49	52	47	43	44	40	37	37	34	32	37	34	32	28
5	70	58	50	45	64	54	47	42	47	41	37	40	36	33	33	30	28	33	30	28	25
6	64	53	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25	30	27	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22	28	25	22	20
8	55	43	36	31	51	41	34	29	35	30	26	30	26	23	26	23	20	26	23	20	18
9	52	40	32	27	48	37	31	26	32	27	23	28	24	21	24	21	18	24	21	18	16
10	48	36	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	22	19	17	15

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1385	1385	1385
5°	1387	1364	1372
10°	1374	1337	1328
15°	1355	1293	1260
20°	1330	1233	1175
25°	1305	1165	1094
30°	1270	1095	990
35°	1237	1020	900
40°	1202	943	795
45°	1163	857	701
50°	1122	770	608
55°	1079	677	519
60°	1029	579	428
65°	972	480	386
70°	903	388	350
75°	816	343	320
80°	690	289	279
85°	482	196	213

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1163 cd/sqm



TEST NUMBER: P918725

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-RLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	200.1	2.3
10°-20°	549.3	6.3
20°-30°	771.2	8.9
30°-40°	840.7	9.7
40°-50°	772.7	8.9
50°-60°	606.8	7.0
60°-70°	395.0	4.6
70°-80°	203.3	2.3
80°-90°	54.4	0.6
90°-100°	47.9	0.6
100°-110°	178.6	2.1
110°-120°	473.7	5.5
120°-130°	785.6	9.1
130°-140°	834.5	9.6
140°-150°	775.6	9.0
150°-160°	623.5	7.2
160°-170°	401.8	4.6
170°-180°	138.3	1.6
0°-30°	1520.7	17.6
0°-40°	2361.4	27.3
0°-60°	3740.9	43.2
0°-90°	4393.6	50.8
90°-120°	700.2	8.1
90°-150°	3095.8	35.8
90°-180°	4259.0	49.2
0°-180°	8653.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	1	13	21	26	28	8
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	



TEST NUMBER: P918725

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-RLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0



TEST NUMBER: P918725

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8



TEST NUMBER: P918725  
 CATALOG NUMBER: DFN2DIP-4P4F0-060D050US935-RLONL

**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	8.37	9.21	9.33	10.17	11.44	4.33	5.17	5.29	6.14	7.40
	3H	10.05	10.80	11.02	11.78	13.06	5.52	6.27	6.49	7.25	8.53
	4H	10.67	11.37	11.65	12.35	13.65	5.97	6.68	6.96	7.66	8.96
	6H	11.09	11.74	12.09	12.73	14.04	6.30	6.95	7.29	7.93	9.24
	8H	11.22	11.84	12.22	12.84	14.15	6.39	7.01	7.39	8.01	9.31
	12H	11.29	11.88	12.29	12.87	14.20	6.43	7.02	7.44	8.02	9.34
4H	2H	8.39	9.10	9.38	10.08	11.37	4.93	5.64	5.92	6.62	7.91
	3H	10.23	10.81	11.22	11.82	13.13	6.28	6.87	7.28	7.88	9.19
	4H	10.92	11.46	11.93	12.46	13.79	6.83	7.37	7.84	8.37	9.70
	6H	11.44	11.90	12.46	12.93	14.26	7.25	7.72	8.27	8.74	10.07
	8H	11.62	12.05	12.64	13.07	14.42	7.38	7.82	8.40	8.83	10.18
	12H	11.72	12.11	12.76	13.14	14.49	7.45	7.84	8.49	8.87	10.22
8H	4H	10.89	11.32	11.91	12.34	13.68	7.12	7.55	8.13	8.57	9.91
	6H	11.46	11.82	12.51	12.88	14.22	7.64	7.99	8.68	9.06	10.40
	8H	11.68	12.00	12.73	13.04	14.40	7.83	8.14	8.88	9.19	10.55
	12H	11.83	12.10	12.88	13.14	14.55	7.95	8.23	9.00	9.27	10.67
12H	4H	10.84	11.23	11.88	12.27	13.62	7.12	7.51	8.16	8.55	9.89
	6H	11.44	11.75	12.49	12.80	14.16	7.69	8.00	8.74	9.05	10.41
	8H	11.66	11.94	12.72	12.98	14.38	7.90	8.18	8.95	9.22	10.62