

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: P902357

Luminaire Tested: DFN2DIP-4P4F0-060D050US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902357
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-4P4F0-060D050US830-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

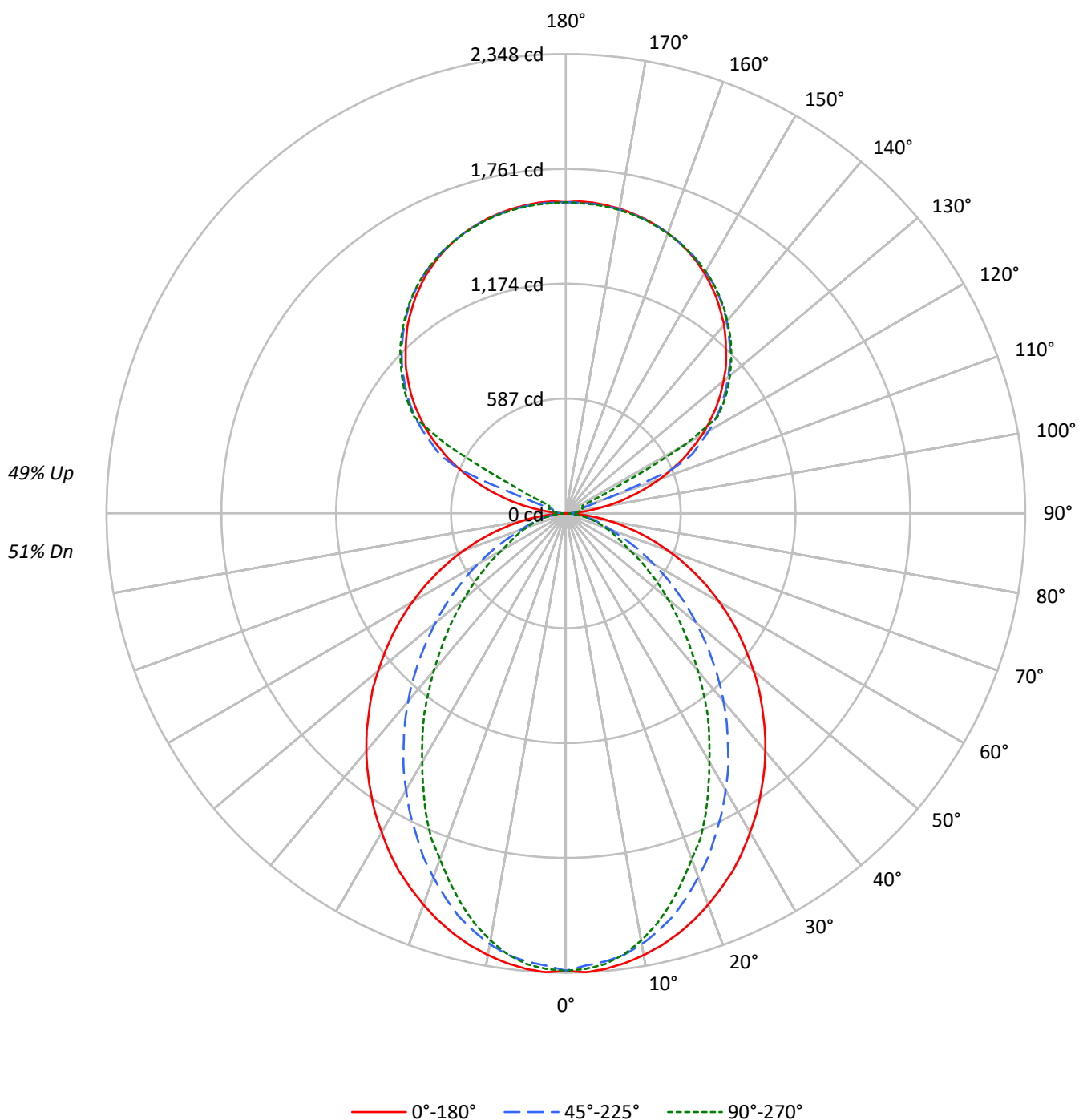
Lumens per Lamp: N/A
Luminaire Lumens: 9472.6 lumens
Efficiency: N/A
Efficacy: 93.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

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: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-RLONL

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1516	1516	1516
5°	1519	1493	1502
10°	1504	1464	1454
15°	1483	1416	1379
20°	1456	1350	1287
25°	1428	1275	1198
30°	1391	1199	1084
35°	1354	1117	985
40°	1316	1032	871
45°	1273	938	767
50°	1228	843	666
55°	1181	741	569
60°	1127	634	469
65°	1064	526	422
70°	989	425	383
75°	894	375	350
80°	756	317	305
85°	528	214	234

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1273 cd/sqm

TEST NUMBER: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	219.1	2.3
10°-20°	601.3	6.3
20°-30°	844.3	8.9
30°-40°	920.3	9.7
40°-50°	845.9	8.9
50°-60°	664.3	7.0
60°-70°	432.4	4.6
70°-80°	222.6	2.3
80°-90°	59.6	0.6
90°-100°	52.5	0.6
100°-110°	195.5	2.1
110°-120°	518.5	5.5
120°-130°	860.0	9.1
130°-140°	913.5	9.6
140°-150°	849.0	9.0
150°-160°	682.6	7.2
160°-170°	439.8	4.6
170°-180°	151.4	1.6
0°-30°	1664.7	17.6
0°-40°	2585.0	27.3
0°-60°	4095.1	43.2
0°-90°	4809.7	50.8
90°-120°	766.5	8.1
90°-150°	3389.0	35.8
90°-180°	4663.0	49.2
0°-180°	9472.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2337	2337	2337	2337	2337	
5°	2337	2327	2299	2318	2312	222
15°	2223	2200	2128	2088	2067	626
25°	2018	1950	1811	1724	1692	928
35°	1739	1631	1445	1312	1265	1088
45°	1421	1280	1058	907	857	1098
55°	1081	916	687	561	520	966
65°	730	558	368	296	290	724
75°	389	241	169	154	152	412
85°	91	46	40	40	40	104
90°	1	14	23	29	31	9
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1469	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	

TEST NUMBER: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2337.3	2337.3	2337.3	2337.3	2337.3
2.5°	2347.9	2337.3	2313.9	2335.2	2331.0
5°	2337.3	2326.8	2299.1	2318.3	2312.0
7.5°	2318.3	2305.6	2276.1	2284.3	2273.8
10°	2292.8	2278.0	2235.9	2229.4	2216.8
12.5°	2261.3	2242.1	2184.9	2172.4	2149.0
15°	2223.1	2199.7	2127.9	2087.7	2066.6
17.5°	2178.7	2144.8	2055.9	2009.4	1975.6
20°	2127.9	2085.5	1979.8	1927.0	1880.4
22.5°	2072.9	2024.2	1901.5	1829.7	1798.0
25°	2018.0	1950.2	1810.6	1724.0	1692.1
27.5°	1952.5	1880.4	1726.0	1626.5	1577.9
30°	1882.6	1802.0	1632.9	1525.1	1467.9
32.5°	1814.9	1717.5	1544.3	1417.2	1364.2
35°	1738.8	1630.9	1444.8	1311.5	1264.8
37.5°	1664.7	1548.2	1351.7	1205.6	1152.8
40°	1586.4	1459.6	1254.2	1104.1	1049.1
42.5°	1506.1	1370.7	1157.1	1000.4	947.7
45°	1421.4	1279.6	1057.7	907.3	856.6
47.5°	1341.1	1191.0	962.5	812.2	765.7
50°	1252.3	1102.1	869.4	723.3	679.1
52.5°	1165.4	1006.7	780.5	640.9	600.8
55°	1080.8	915.9	687.4	560.6	520.4
57.5°	994.2	824.9	605.0	486.5	452.6
60°	905.3	736.1	518.2	410.5	376.5
62.5°	818.7	649.5	444.1	342.7	325.8
65°	729.8	558.4	368.1	296.2	289.7
67.5°	645.2	473.7	296.2	260.1	253.8
70°	556.3	391.3	245.2	224.2	215.7
72.5°	471.7	315.1	205.1	188.3	184.0
75°	389.2	241.0	169.2	154.4	152.4
77.5°	306.8	171.3	133.3	124.8	120.6
80°	230.5	122.7	101.4	93.1	93.1
82.5°	160.7	82.6	69.7	65.5	65.5
85°	90.9	46.5	40.2	40.2	40.2
87.5°	33.9	16.9	16.9	14.8	14.8
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.7	277.4	68.0	80.5	84.1
105°	349.9	384.5	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	534.0	201.4	86.3	90.9



TEST NUMBER: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.2	584.7	88.6	92.1
115°	661.8	681.3	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.6	306.1
120°	805.6	822.8	843.6	857.4	702.0
122.5°	870.0	888.4	911.5	918.4	919.6
125°	935.6	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1029.0	1040.4	1041.5
130°	1051.9	1070.4	1082.9	1095.6	1094.6
132.5°	1109.5	1124.5	1137.0	1147.5	1146.3
135°	1157.8	1176.3	1186.5	1198.2	1195.8
137.5°	1208.3	1222.2	1233.8	1245.3	1241.9
140°	1257.8	1267.2	1279.7	1290.1	1284.4
142.5°	1299.4	1307.5	1322.4	1331.5	1325.8
145°	1343.1	1341.9	1361.4	1369.5	1363.8
147.5°	1381.0	1377.5	1397.1	1402.9	1398.4
150°	1417.9	1409.9	1428.2	1435.1	1429.4
152.5°	1448.9	1439.7	1457.0	1464.0	1455.9
155°	1478.8	1468.6	1482.3	1489.2	1480.1
157.5°	1503.0	1493.8	1504.2	1512.3	1503.0
160°	1523.8	1516.8	1523.8	1530.6	1522.6
162.5°	1542.1	1535.3	1541.0	1549.1	1538.7
165°	1558.2	1551.4	1554.8	1562.8	1554.8
167.5°	1570.9	1564.0	1567.5	1575.6	1565.2
170°	1581.3	1574.3	1576.7	1584.7	1574.3
172.5°	1588.2	1581.3	1583.7	1591.7	1581.3
175°	1593.9	1585.8	1588.2	1596.2	1584.7
177.5°	1596.2	1588.2	1589.4	1597.4	1587.1
180°	1590.4	1590.4	1590.4	1590.4	1590.4

TEST NUMBER: P902357

CATALOG NUMBER: DFN2DIP-4P4F0-060D050US830-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	8.68	9.52	9.64	10.49	11.75	4.64	5.48	5.60	6.45	7.71
	3H	10.37	11.12	11.34	12.09	13.38	5.84	6.58	6.80	7.56	8.85
	4H	10.98	11.69	11.96	12.67	13.96	6.29	6.99	7.27	7.98	9.27
	6H	11.41	12.06	12.40	13.04	14.35	6.61	7.26	7.60	8.25	9.55
	8H	11.54	12.16	12.54	13.16	14.46	6.70	7.32	7.70	8.32	9.63
	12H	11.60	12.19	12.61	13.19	14.51	6.75	7.34	7.75	8.33	9.66
4H	2H	8.70	9.41	9.69	10.39	11.69	5.24	5.95	6.23	6.93	8.23
	3H	10.54	11.13	11.54	12.14	13.45	6.60	7.19	7.59	8.20	9.50
	4H	11.24	11.77	12.24	12.78	14.11	7.15	7.68	8.15	8.69	10.02
	6H	11.76	12.22	12.77	13.25	14.57	7.57	8.03	8.59	9.06	10.39
	8H	11.94	12.37	12.95	13.39	14.73	7.70	8.13	8.72	9.15	10.49
	12H	12.04	12.42	13.07	13.46	14.81	7.77	8.15	8.80	9.19	10.54
8H	4H	11.21	11.64	12.22	12.66	14.00	7.43	7.86	8.45	8.88	10.22
	6H	11.78	12.13	12.82	13.20	14.54	7.95	8.31	8.99	9.37	10.71
	8H	12.00	12.31	13.05	13.36	14.72	8.15	8.46	9.20	9.51	10.87
	12H	12.14	12.42	13.19	13.46	14.86	8.27	8.54	9.32	9.58	10.99
12H	4H	11.16	11.55	12.19	12.58	13.93	7.44	7.83	8.47	8.86	10.21
	6H	11.75	12.07	12.80	13.11	14.47	8.00	8.32	9.05	9.36	10.72
	8H	11.98	12.25	13.03	13.30	14.70	8.22	8.49	9.27	9.53	10.94