

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: P903036

Luminaire Tested: DFN2DIP-PN3F0-060D040US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903036
REPORT IS A COMBINATION OF REPORTS P899531 AND P896399
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-060D040US830-FLLFLL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

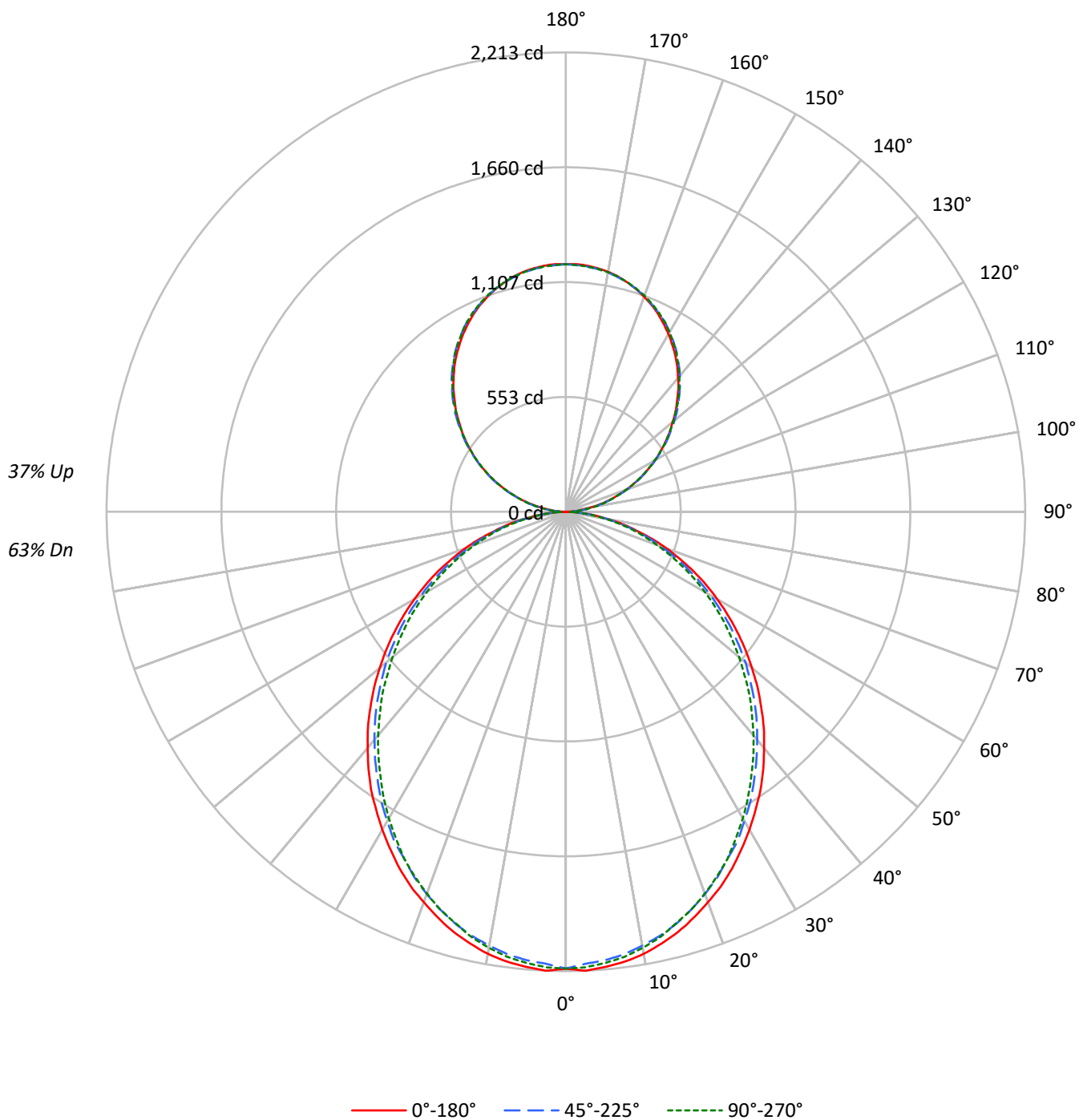
Lumens per Lamp: N/A
Luminaire Lumens: 8935.3 lumens
Efficiency: N/A
Efficacy: 102.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 87
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903036

CATALOG NUMBER: DFN2DIP-PN3F0-060D040US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P903036

CATALOG NUMBER: DFN2DIP-PN3F0-060D040US830-FLLFL

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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2572	2572	2572
5°	2575	2535	2552
10°	2553	2499	2517
15°	2513	2456	2462
20°	2461	2397	2405
25°	2409	2327	2340
30°	2344	2261	2258
35°	2283	2184	2171
40°	2207	2107	2088
45°	2132	2029	2003
50°	2049	1947	1905
55°	1963	1852	1814
60°	1865	1740	1711
65°	1758	1623	1588
70°	1621	1481	1456
75°	1433	1310	1332
80°	1205	1093	1099
85°	849	723	717

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2132 cd/sqm

TEST NUMBER: P903036

CATALOG NUMBER: DFN2DIP-PN3F0-060D040US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	2.3
10°-20°	582.7	6.5
20°-30°	856.4	9.6
30°-40°	994.6	11.1
40°-50°	993.4	11.1
50°-60°	866.2	9.7
60°-70°	640.3	7.2
70°-80°	362.3	4.1
80°-90°	99.0	1.1
90°-100°	73.8	0.8
100°-110°	234.4	2.6
110°-120°	401.2	4.5
120°-130°	527.6	5.9
130°-140°	592.2	6.6
140°-150°	580.8	6.5
150°-160°	487.2	5.5
160°-170°	323.1	3.6
170°-180°	112.9	1.3
0°-30°	1646.2	18.4
0°-40°	2640.9	29.6
0°-60°	4500.5	50.4
0°-90°	5602.1	62.7
90°-120°	709.4	7.9
90°-150°	2410.0	27.0
90°-180°	3333.0	37.3
0°-180°	8935.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2055	2063	2053	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1615	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	667	646	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	1	13	35	33	34	9
95°	52	63	64	64	63	58
105°	216	219	221	223	223	228
115°	403	408	406	406	403	398
125°	586	595	592	588	587	523
135°	757	768	771	770	767	585
145°	920	927	932	934	930	575
155°	1051	1054	1058	1063	1059	484
165°	1144	1143	1143	1150	1145	323
175°	1190	1187	1185	1192	1186	113
180°	1192	1192	1192	1192	1192	

TEST NUMBER: P903036

CATALOG NUMBER: DFN2DIP-PN3F0-060D040US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.5	2200.5	2200.5	2200.5	2200.5
2.5°	2213.3	2202.7	2179.3	2200.5	2196.4
5°	2200.5	2192.2	2168.8	2185.7	2181.6
7.5°	2185.7	2173.1	2149.8	2166.8	2162.6
10°	2162.6	2147.8	2122.3	2139.2	2132.9
12.5°	2130.7	2118.1	2092.7	2103.3	2099.0
15°	2094.7	2082.2	2054.6	2063.1	2052.6
17.5°	2050.3	2037.8	2010.2	2020.6	2010.2
20°	2001.6	1989.0	1959.4	1965.7	1957.4
22.5°	1953.1	1934.0	1906.4	1906.4	1902.1
25°	1895.8	1879.1	1843.0	1847.1	1843.0
27.5°	1832.3	1817.5	1790.1	1783.9	1773.3
30°	1769.1	1751.9	1720.3	1714.0	1705.4
32.5°	1701.2	1688.7	1654.7	1641.9	1633.4
35°	1635.7	1614.6	1580.6	1567.8	1557.3
37.5°	1561.6	1542.5	1508.6	1493.7	1483.2
40°	1485.4	1468.4	1434.5	1415.7	1407.1
42.5°	1411.4	1394.3	1360.7	1339.4	1326.7
45°	1331.1	1316.2	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1204.0	1180.6	1168.0
50°	1170.1	1159.5	1129.9	1100.2	1089.7
52.5°	1089.7	1074.9	1047.4	1024.2	1009.4
55°	1007.3	994.5	969.1	943.8	933.2
57.5°	924.7	914.2	886.6	861.2	852.6
60°	842.1	833.8	804.2	780.8	774.5
62.5°	761.7	746.9	725.8	704.6	696.2
65°	679.3	666.6	645.5	626.3	615.8
67.5°	594.6	583.9	565.1	550.3	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.9	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	1.0	12.9	35.3	33.1	34.1
92.5°	22.2	30.2	31.3	32.3	32.3
95°	52.5	62.6	64.4	64.4	62.6
97.5°	87.4	96.7	100.7	100.7	100.7
100°	127.6	135.9	138.7	138.7	137.7
102.5°	170.0	176.2	180.1	181.2	180.1
105°	216.4	219.2	221.4	223.2	223.2
107.5°	262.4	266.7	266.7	267.4	262.4
110°	307.0	312.7	312.7	312.7	309.9



TEST NUMBER: P903036

CATALOG NUMBER: DFN2DIP-PN3F0-060D040US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	355.1	361.3	360.1	357.3	355.1
115°	402.6	408.4	406.5	405.5	402.6
117.5°	449.7	457.6	452.6	449.7	446.9
120°	497.2	505.0	497.2	497.2	493.9
122.5°	540.3	550.4	545.4	542.4	540.3
125°	585.6	594.6	591.7	588.4	587.4
127.5°	629.8	640.9	637.0	632.6	629.8
130°	671.1	684.1	682.3	680.1	676.2
132.5°	717.5	727.5	728.3	723.2	720.4
135°	757.4	768.5	770.7	769.6	766.8
137.5°	802.0	811.0	812.8	812.0	807.8
140°	841.1	850.2	855.2	855.2	851.2
142.5°	881.5	890.4	893.2	894.4	890.4
145°	919.5	926.7	932.5	933.6	929.6
147.5°	953.7	962.6	967.0	968.7	964.8
150°	988.9	995.0	999.0	1002.2	999.0
152.5°	1020.2	1026.2	1031.3	1035.3	1031.3
155°	1051.4	1054.3	1057.5	1062.6	1059.3
157.5°	1078.5	1080.5	1082.3	1089.6	1084.5
160°	1102.5	1104.7	1105.7	1111.8	1107.5
162.5°	1124.7	1124.7	1125.9	1132.7	1127.7
165°	1143.9	1142.7	1142.7	1149.9	1144.9
167.5°	1161.1	1157.8	1157.8	1165.1	1160.0
170°	1174.0	1171.1	1170.1	1177.2	1171.1
172.5°	1183.0	1180.2	1179.0	1186.3	1180.2
175°	1190.2	1187.3	1185.2	1192.3	1186.3
177.5°	1194.2	1191.3	1189.1	1195.2	1189.1
180°	1192.3	1192.3	1192.3	1192.3	1192.3

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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	11.61	12.60	12.45	13.46	14.54	11.17	12.16	12.01	13.02	14.10
	3H	13.27	14.16	14.13	15.03	16.14	12.79	13.68	13.64	14.55	15.66
	4H	13.86	14.70	14.73	15.58	16.70	13.38	14.22	14.25	15.10	16.21
	6H	14.26	15.04	15.15	15.92	17.05	13.78	14.55	14.66	15.43	16.56
	8H	14.37	15.11	15.26	16.01	17.14	13.88	14.62	14.77	15.52	16.65
	12H	14.42	15.12	15.32	16.02	17.17	13.92	14.63	14.82	15.52	16.68
4H	2H	12.08	12.92	12.96	13.80	14.92	11.73	12.57	12.61	13.45	14.56
	3H	13.95	14.65	14.84	15.56	16.69	13.55	14.25	14.44	15.16	16.29
	4H	14.67	15.31	15.56	16.21	17.37	14.25	14.89	15.15	15.80	16.95
	6H	15.18	15.74	16.10	16.67	17.82	14.76	15.31	15.67	16.24	17.40
	8H	15.33	15.85	16.25	16.77	17.95	14.91	15.42	15.82	16.35	17.52
	12H	15.41	15.87	16.34	16.82	18.00	14.97	15.44	15.91	16.38	17.56
8H	4H	14.87	15.39	15.78	16.31	17.48	14.50	15.02	15.41	15.94	17.11
	6H	15.50	15.93	16.44	16.89	18.06	15.12	15.55	16.07	16.52	17.69
	8H	15.72	16.10	16.67	17.05	18.24	15.33	15.71	16.29	16.67	17.86
	12H	15.85	16.18	16.80	17.13	18.37	15.45	15.78	16.41	16.73	17.97
12H	4H	14.86	15.33	15.80	16.27	17.45	14.50	14.96	15.43	15.91	17.08
	6H	15.53	15.91	16.48	16.86	18.05	15.16	15.54	16.12	16.50	17.69
	8H	15.77	16.10	16.73	17.06	18.29	15.40	15.73	16.35	16.68	17.92