

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: P918255

Luminaire Tested: DFN2DIP-TR4F0-060D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918255
REPORT IS A COMBINATION OF REPORTS P901893 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D040US930-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

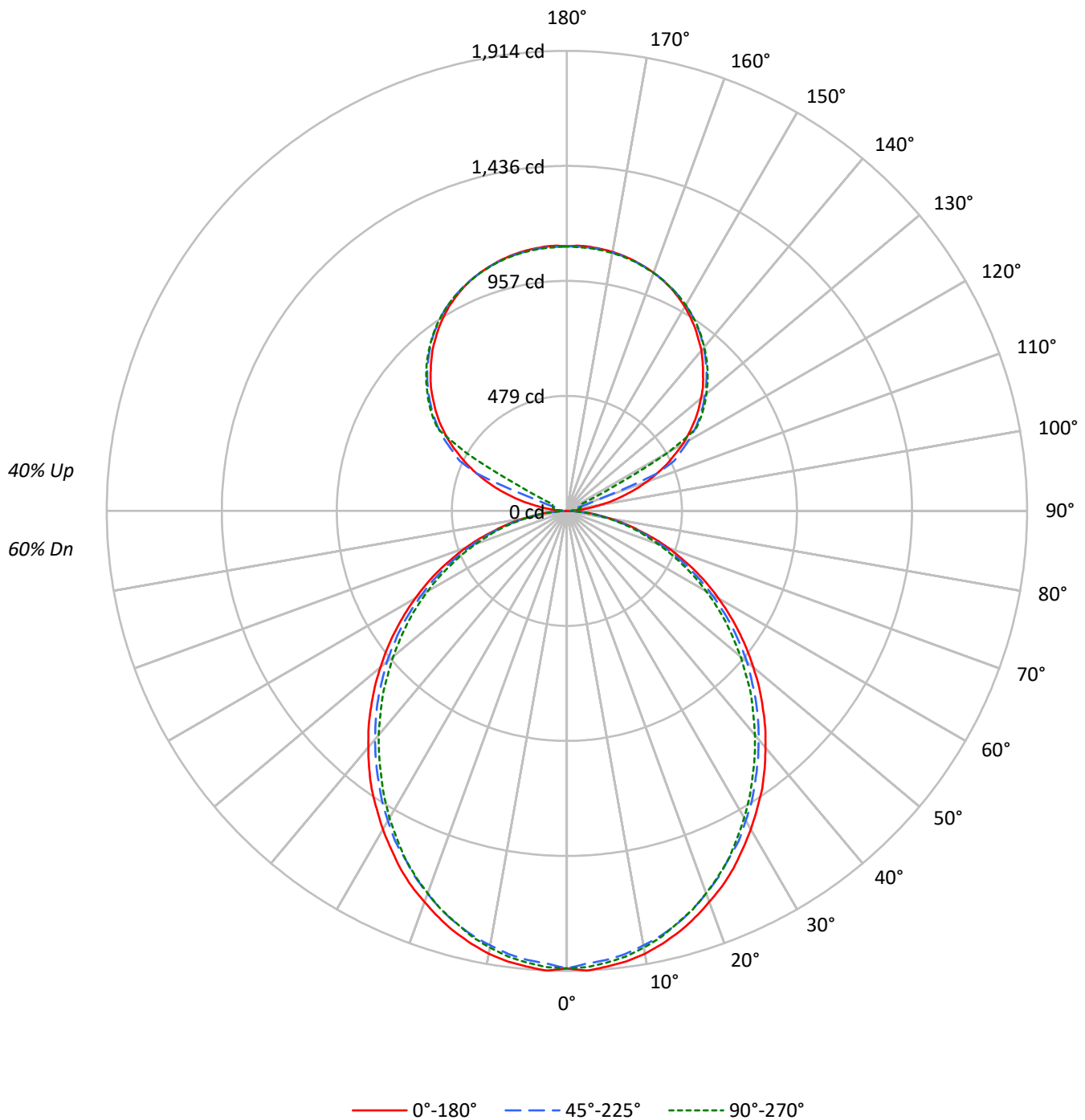
Lumens per Lamp: N/A
Luminaire Lumens: 8071.4 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 83.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1512	1512	1512
5°	1515	1491	1501
10°	1502	1471	1481
15°	1480	1447	1449
20°	1450	1413	1416
25°	1421	1373	1379
30°	1384	1335	1331
35°	1348	1291	1280
40°	1305	1247	1232
45°	1262	1202	1183
50°	1214	1155	1126
55°	1165	1101	1073
60°	1109	1036	1013
65°	1048	969	942
70°	970	888	866
75°	862	791	796
80°	733	666	661
85°	530	452	438

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1262 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	2.2
10°-20°	504.1	6.2
20°-30°	740.8	9.2
30°-40°	860.4	10.7
40°-50°	859.3	10.6
50°-60°	749.3	9.3
60°-70°	553.9	6.9
70°-80°	313.4	3.9
80°-90°	84.6	1.0
90°-100°	36.3	0.4
100°-110°	135.3	1.7
110°-120°	358.8	4.4
120°-130°	595.1	7.4
130°-140°	632.1	7.8
140°-150°	587.5	7.3
150°-160°	472.3	5.9
160°-170°	304.4	3.8
170°-180°	104.8	1.3
0°-30°	1424.0	17.6
0°-40°	2284.3	28.3
0°-60°	3892.9	48.2
0°-90°	4844.8	60.0
90°-120°	530.4	6.6
90°-150°	2345.2	29.1
90°-180°	3227.0	40.0
0°-180°	8071.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	1	10	16	20	21	7
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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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	9.58	10.54	10.45	11.43	12.55	9.15	10.11	10.01	11.00	12.12
	3H	11.25	12.11	12.13	13.01	14.15	10.78	11.64	11.65	12.53	13.68
	4H	11.84	12.65	12.73	13.56	14.71	11.37	12.18	12.26	13.08	14.24
	6H	12.24	12.99	13.15	13.90	15.07	11.77	12.52	12.68	13.43	14.60
	8H	12.35	13.07	13.27	13.99	15.16	11.88	12.59	12.79	13.52	14.69
	12H	12.40	13.08	13.32	14.01	15.20	11.92	12.60	12.84	13.52	14.72
4H	2H	10.05	10.87	10.95	11.77	12.93	9.71	10.52	10.61	11.43	12.58
	3H	11.93	12.61	12.84	13.54	14.71	11.54	12.22	12.45	13.15	14.32
	4H	12.65	13.27	13.57	14.20	15.39	12.24	12.86	13.16	13.79	14.99
	6H	13.17	13.70	14.10	14.66	15.85	12.76	13.29	13.69	14.25	15.44
	8H	13.32	13.82	14.26	14.77	15.98	12.91	13.41	13.84	14.36	15.57
	12H	13.40	13.85	14.35	14.81	16.03	12.98	13.43	13.93	14.39	15.61
8H	4H	12.85	13.35	13.79	14.30	15.51	12.49	12.99	13.43	13.94	15.15
	6H	13.49	13.90	14.45	14.89	16.10	13.12	13.54	14.09	14.53	15.74
	8H	13.71	14.07	14.68	15.05	16.28	13.34	13.71	14.31	14.68	15.91
	12H	13.84	14.17	14.82	15.14	16.42	13.46	13.78	14.44	14.75	16.03
12H	4H	12.84	13.29	13.80	14.26	15.48	12.49	12.94	13.45	13.91	15.12
	6H	13.52	13.88	14.49	14.86	16.09	13.17	13.53	14.14	14.51	15.74
	8H	13.76	14.09	14.74	15.06	16.34	13.41	13.73	14.38	14.70	15.98